
INTRODUCTION
Recently the amino acid sequence of alpha human (Kangawa and Matsuko: BIOCH BIOPHYS RES COMM 118: 131-139, 1984), and rat (Kangawa et al.: BIOCH BIOPHYS RES COMM 121: 585-591, 1984; Flynn et al.: BIOCH BIOPHYS RES COMM 117: 859-865, 1983), atrial natriuretic polypeptide has been determined. Attention has been focused on the peptides' physiological importance and their possible involvement in hypertension. In the present study activity of synthetic α-human atrial natriuretic polypeptide (α-hANP) on arterial vascular strips and perfused mesenteric vessels was investigated.

MATERIALS AND METHODS
Arterial strip experiments: Helical strips were prepared from segments of the thoracic aorta (TA) and the superior mesenteric artery (SMA) from 40 day old and 4-5 month old female SHR and WKY. The strips were suspended under a resting tension of 500 mg for TA and 400 mg for SMA in 3 mL water-jacketed baths at 37 ºC. A sustained contraction was obtained by adding 10 μM of PAF to the bath. Changes in muscle tension were recorded isometrically using a force-displacement transducer after the addition of cumulative doses of α-hANP. The relaxation induced by the peptide was expressed as a percentage of the relaxation obtained with 100 μM papaverine.

Perfusion experiments: Isolated SMA vascular bed preparations from male 4-5 month old SHR and WKY were prepared as previously reported (Mtabaji et al.: CAN J PHYSIOL PHARMACOL 54: 357-366, 1975). A flow rate of 3-4 mL/min was used which gave a steady baseline pressure of 20-30 mm Hg. Norepinephrine (100 ng) dissolved in 0.1 mL of saline was injected at five minute intervals before and during the background perfusion of α-hANP. The peptide was added to the perfusing fluid to give a final concentration of 1 nM/L or 10 nM/L.

RESULTS
Arterial strip experiments: A dose dependent vasodilatation was observed after the addition of α-hANP. There was no difference in the dose-response curves obtained with the peptide in TA of young SHR, young WKY and old WKY. Aged SHR were less responsive to α-hANP than young SHR and age matched WKY though, for WKY, this did not reach statistical significance. No differences were observed using SMA preparations.

Perfusion experiments: Pressor responses obtained before the addition of α-hANP were 113.9±5.9 mm Hg for WKY and 146.5±9.7 mm Hg for SHR. The responses did not change after the addition of α-hANP at either concentrations.

SUMMARY AND DISCUSSION
These results show that α-hANP relaxed arterial strips but had no effect on pressor responses obtained in perfused mesenteric vessels. These results are similar to those of atripentepin II, a c-terminal deleted form of α-rANP (Kangawa et al.: BIOCH BIOPHYS RES COMM 121: 585-591, 1984) which relaxes rabbit aortic strips but has no effect on perfused rat hind limb vessels (Oshima et al.: CIRC RES 54: 612-616, 1984), suggesting atrial peptides may have little effects on resistance vessels. The difference observed in aged SHR cannot be explained purely on aging because no change was observed in aged WKY. It might be related to changes induced by the hypertensive state of the SHR.

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