

GS5-5 Characterization of vascular tone regulation by endothelium in mesenteric resistance arteries

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The present study was designed to investigate the role of the vascular endothelium in the regulation of methoxamine (α_1 -adrenoceptor agonist)-induced vasoconstriction and their age-related changes in rat mesenteric vascular beds. Furthermore, in order to find substances and drugs, which prevent or improve age-related deficiency of the endothelium function, the vasodilator effects and long-term administration effects of aqueous extracts from *Eucommia ulmoides* Oliv. (Chinese medicine) were studied in rat mesenteric arteries.

Male Wistar rats, weighting 250-450g (8 to 16 week-old), were used in this study. Under pentobarbital anesthesia mesenteric vascular beds were isolated and prepared for perfusion. The isolated mesenteric vascular bed was perfused with Krebs solution and changes in the perfusion pressure were measured.

In conclusion, the present study suggests that, in rat mesenteric arteries, vascular endothelium acts to depress methoxamine-induced vasoconstriction by releasing EDHF, which is associated with activation of multiple K^+ -channels and gap junction involvement. Furthermore, the present study also suggests that the inhibitory effect of vascular endothelium on methoxamine-induced vasoconstriction in mesenteric arteries markedly decreases with ageing and that *Eucommia ulmoides* Oliv. has a endothelium-dependent EDHF-mediated vasodilator activity and an improvement effect on age-related attenuation of endothelial function in mesenteric arteries.