血管障害の発生および進展に果たす血管壁レニン・アンジオテンシンの役割り

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Role of vascular renin-angiotensin for the development of hypertension

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内分泌・代謝学

Research Institution

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Research Abstract

Angiotensin II (ANG II) generation from the isolated mesenteric arteries was measured in control rats, and in hypertensive rat models. In order to elucidate the possible role of the vascular renin-angiotensin system (RAS) for the control of blood pressure, the effect of angiotensin converting enzyme (ACEI) on the ANG II production was also examined. The perfusion pressure (PP) response to endothelin (ET), a novel vasoconstrictor peptide, was also examined in the mesenteric artery preparation obtained from rats with various ANG II levels. In the control rats, 43.0<plus-minus>12.0 pg/h of ANG II was released in the perfusate, which was not significantly changed by nephrectomy (Nex), in spite of the decreased plasma renin activity (PRA) and plasma ANG II concentration in the circulation. ACEI treatment significantly decreased blood pressure (BP) in the control and Nex rats, in parallel with a decreased vascular ANG II generation. In deoxycorticosterone acetate-treated rats, PRA, plasma aidosterone and ANG II concentration were significantly suppressed, and ACEI

administration induced a slight but significant decrease in BP. ET produced a sustained increase in PP in the control rat mesenteric arteries. The increase was more potent than ANG II on molar basis, and was not inhibited by ANG II analogue. In conclusion, the present results support that the ANG II is generated in the vascular wall independent of RAS in the circulation, and suggest that the vascular RAS is partly responsible for the antihypertensive action of ACEI. A lack of inhibition of pressure response to ET by ANG II analogue suggests that ET and ANG II possess their own specific receptor

Research Products (9 results)

All | Other

All | Publications (9 results)

[Publications] Isamu Miyamori: "Angiotensin II generation in mesenteric arteries in rats:effects of nephrectomy,deoxycorticosterone and dexamethasone." Endocrinol Jpn.(印刷中).

[Publications] I.Miyamori: "The role of intestinal bacteria in the metabolism of aldosterone in man." Hormone Res.29. 147-150 (1988)

[Publications] Hideo Koshida: "Mineralocorticoid and renal receptor binding activity of 21-deoxy aldosterone." Endocrinology. 126. (1990)

[Publications] R.Takeda: "Effects ofmineralocorticoids on angiotensin II generation in vascular bed." The Adrenal and Hypertension. Raven Press. 57. 135-143 (1989)

[Publications] Isamu Miyamori, Takao Matsubara, Yoshiyu Takeda, Hideo Koshida, Ryuichiro Soma, Ryoyu Takeda.: "Angiotensin II generation in mesenteric arteries in rats: effects of nephrectomy, deoxycorticosterone and dexamethasone." Acta Endocrinol Jpn.(1990)

[Publications] I.Miyamori, H.Koshida, T.Matsubara, M.Ikeda, Y.Takeda, R.Takeda.: "The role of intestinal bacteria in the metabolism of aldosterone in man." Hormone Res. 29. 147-150 (1988)

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