

Role of hypothalamic renin ·angiotensin system on the pathogenesis of salt sensitive hypertension

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The effect of high or low salt loading on hypothalamic renin ·angiotensin system was investigated using rats feeding with high or low salt diet and rats with DOCA / salt treatment. Plasma renin activity (PRA) was suppressed at the acute and chronic phase of high salt diet and DOCA / salt treatment. Reversely plasma renin activity was enhanced at the low salt diet of both acute and chronic phase periods. On the contrary, the expression of renin mRNA in hypothalamus was enhanced at acute phase of high salt loading and was not suppressed at chronic phase of high salt loading as compared with those of regular salt intake group. Similar phenomena were observed in DOCA / salt hypertensive rats. By the treatment of DOCA and high salt diet, blood pressure increased up to hypertension level. The expression of renin mRNA in hypothalamus was not suppressed by the treatment of DOCA and salt, although plasma renin activity was suppressed by DOCA / salt treatment. These results suggest that the expression of renin mRNA in hypothalamus was independently different from the circulatory renin ·angiotensin system in blood and kidneys. As the expression of hypothalamic renin ·angiotensin system was correlated with the elevation of blood pressure, the hypothalamic renin ·angiotensin system play an important role for the pathogenesis of hypertension.