Role of Angiotensin II Receptors in Pressure Overload-induced Left Ventricular Hypertrophy

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ZHANG et al.: Role of Angiotensin II Receptors in Pressure Overload-induced Left Ventricular Hypertrophy. Objective: To investigate the role of angiotensin receptors (ATRs) in pressure overload-induced left ventricular hypertrophy (LVH). Methods: The model of rat abdominal aortic constriction was adapted. At 10th week after operating, Ang II in myocardium was measured by radioimmunoassay, tissue ATRs and its subtype were analysed by radioligand binding assay. Results: The content of Ang II in the operated group was significantly more than that in the control group. Left ventricular mass index (LVMI) was positively correlated with Ang II (r=0.8066, P<0.01). The maximal binding capacity of ATRs in the operated group was significantly higher than that in the controls (P< 0.01). However, the dissociation constant (kd) and ratio of AT1 to AT2 receptor between the two groups were not significantly different. Left ventricular hypertrophy was markedly reduced by Irbesartan, an AT1R antagonist, and was not influenced by CGP42112A, an AT2R antagonist. Conclusions: These results suggest that left ventricular ATRs were upregulated during the pressure overload. The left ventricular hypertrophy induced by Ang II is mainly due to AT1R pathway. (J HK Coll Cardiol 2001;9:41-44)

Key words: Angiotensin II, angiotensin receptors, left ventricular hypertrophy, receptor