

## Altered Regulation of Renal Nitric Oxide and Atrial Natriuretic Peptide Systems in Angiotensin II-induced Hypertension

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The present study was aimed to determine whether there is an altered role of local nitric oxide (NO) and atrial natriuretic peptide (ANP) systems in the kidney in association with the angiotensin (Ang) II-induced hypertension. Male Sprague-Dawley rats were used. Ang II (100 ng · min<sup>-1</sup> · kg<sup>-1</sup>) was infused through the entire time course. Thirteenth days after beginning the regimen, kidneys were taken. The protein expression of NO synthases (NOS) was determined by semiquantitative immunoblotting. The mRNA expression of components of ANP system was determined by real-time polymerase chain reaction. The activities of soluble and particulate guanylyl cyclases were determined by the amount of cGMP generated in responses to sodium nitroprusside and ANP, respectively. There developed hypertension along with decreased creatinine clearance in the experimental group. Accordingly, the protein expression of eNOS and nNOS was increased in the cortex, while that of iNOS remained unaltered. The urinary excretion of NO increased. The catalytic activity of soluble guanylyl cyclase was blunted in the glomerulus. While the expression of ANP was increased, neither the expression of NPR-A nor that of NPR-C was changed. The protein expression of neutral endopeptidase was decreased and the activity of particulate guanylyl cyclase was blunted in the glomerulus and papilla. In conclusion, increased synthesis of NOS and ANP in the kidney associated with downregulation of neutral endopeptidase may play a compensatory role against the hypertension in Ang II-infused rats.

**Key Words:** Angiotensin II, 이노호르몬, 산화질소  
Angiotensin II, Atrial natriuretic peptide, Nitric oxide