

STUDIES ON THE RELATIONSHIP BETWEEN SALT AND
BLOOD PRESSURE CONTROL MECHANISMS AND
THE PREVENTION OF HYPERTENSION

Importance of the Sympathetic Nervous System in Blood Pressure
Elevation by Subpressor Intraventricular NaCl and
Angiotensin II in the Rat

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Summary

This study was performed to examine the effect of chemical sympathectomy with guanethidine on the BP change and humoral factors in rats which received continuous infusion of ICV hypertonic NaCl concomitantly with IV Ang II both at subpressor doses for 7 days. Male rats were divided into 3 groups which received the following infusions using an osmotic minipump at a rate of 1 μ l/hr: Group 1 (n=11), 0.15M NaCl ICV and Ang II (5.4 pmol/kg/min) IV; Group 2 (n=9), 0.8M NaCl ICV and Ang II IV; Group 3 (n=5), 0.8M NaCl ICV and Ang II IV with daily ip injection of guanethidine (40 mg/kg). Significant increase in BP was observed only in Group 2 (from 103 \pm 3 mmHg to 132 \pm 5 mmHg on day 7, p<0.001). Addition of ip guanethidine to ICV infusion of 0.8M NaCl and the subpressor dose of Ang II completely prevented increase in the BP. These results suggest that the presence of the intact sympathetic nervous system is necessary for the development of BP elevation in response to ICV hypertonic NaCl plus IV Ang II. Thus, the sodium status in the central nervous system is important in the regulation of BP and is closely related with the activity of the sympathetic nervous system.