

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

Chronological changes in the release of amino acid in the rat ventrolateral medulla in response to hypertonic NaCl injection to the lateral ventricle

Toshio Ogihara
Hiroshi Mikami, Katsutoshi Katahira

Department of Geriatric Medicine
Osaka University Medical School
Osaka 553, Japan

Summary

This study was performed to see if there is any change in the release of amino acids in the rat rostral ventrolateral medulla (RVLM) in response to administration of hypertonic NaCl (1.5 M) into the lateral cerebroventricle (ICV). Brain microdialysis method was used to determine the chronological change in the release of various amino acid neurotransmitters from the RVLM and its adjacent points (1 mm lateral and medial to the RVLM). Among the amino acids tested, glutamate had the most significant elevation amounting to twice as much as noted in control group as well as in those adjacent points 20 min after ICV injection of 1.5 M NaCl solution. Glycin and γ -aminobutylic acid had also a significant peak in comparison with the control group. These results suggest that these amino acids are functioning as neurotransmitters in the RVLM mediating the blood pressure elevation seen in response to acute injection of hypertonic NaCl into the lateral ventricle of the rat.