

МАТЕРИАЛЫ КОНФЕРЕНЦИИ  
И ШКОЛЫ

COMPARATIVE STUDY OF VERTEBRATE'S NEUROHORMONES  
(VASOTOCIN, VASOPRESSIN) EFFECT ON ARTERIAL PRESSURE IN RATS

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Arginine-vasotocin (AVT) is a main hormone for water-salt metabolism regulation in amphibians, reptiles and birds; it is also synthesized in the pineal gland of mammals. Nevertheless, there the leading role in the water-salt balance maintaining is played by arginine-vasopressin (AVP), which has the replacement of phenylalanine with isoleucine in the 8th position. AVP has a pronounced antidiuretic effect, AVT has an antidiuretic and powerful saluretic effect [Gao, Natchin, 2004], which determined the adaptation of mammals during evolution. The osmotic homeostasis associated with the regulation of circulating blood volume and arterial pressure (BP). The goal of this work was a comparative study of AVP and AVT effects on BP in rats under different conditions of water-salt balance. The experiments were performed on non-anesthetized female Wistar rats in accordance with Russian and international rules for working with laboratory animals. AVP or AVT were administered intramuscularly at a dose of 0.05 nmol/100 g body weight per se and with hypervolemic loads (5% oral water load, 5% oral load with a 0.9% NaCl solution, intraperitoneal administration of a 2.5% NaCl solution in 1.8 mL/100 g body weight); the control group was injected with 0.9% sodium chloride. BP was measured with the tail cuffs by a non-invasive method on Coda

two-channel setup (Kent Scientific Co, USA). The data are presented as the mean and the error of the mean ( $M \pm m$ ), the significance of differences with the control was evaluated using the Student t-test and was significant at  $p < 0.05$ . The average BP level increase after 20 minutes the administration of 0.05 nmol AVT compared with the control was  $48 \pm 4.1$  mm Hg ( $p < 0.05$ ). Measurement of blood pressure after AVP injection revealed an increase of  $20.1 \pm 4.2$  mm Hg ( $p > 0.05$ ), without statistically significant differences from the control group. The study of blood pressure with changing of the volume, osmolality and concentration of sodium in the blood per se and with action of AVP and AVT did not reveal statistically significant differences; which allows us to conclude that regulation is effective maintaining the ratio of circulating blood volume and blood pressure in the area of the selected experimental options with various types of hypervolemic loads. AVP has the most pronounced antidiuretic effect, but AVT demonstrate higher natriuretic and pressor activity, which is crucial for its participation not only in osmosis, but also in volume regulation.

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