periments is assumed to be due to the effect of such vasopressors as catecholamines, angiotensin, and vasopressin. This is confirmed by the short latent period of the reaction, as well as the disappearance of the initial peak of the pressor response after plasma dialysis. Apparently, the second AP peak cannot be explained by the effect of known vasopressors.

Thus, the results obtained attest to plasma hypertensive activity in WKY rats under conditions of $Ca^{2+}$and Mg^{2+} deficiency in drinking water. The correction of the Ca^{2+} and Mg^{2+} content in the water may prevent AH development, as well as the appearance of plasma hypertensive activity. A pressure response to plasma injection from the Ca^{2+}-deficient group resembles in its development the effect of the parathyroid hypertensive factor (PHF), which was found by Pang [7,8] in plasma of spontaneously hypertensive rats. This study provided evidence that the exogenous Ca^{2+} effect may be realized through the changes in the state of the ion-transport system playing an important role in AH pathogenesis [1]. This effect is probably mediated by the expression of a Ca^{2+}-dependent hypertensive factor similar to PHF.

The findings clarify some aspects of the pathogenesis of essential hypertension and open up new prospects for its nondrug initial prevention in regions with a low Ca^{2+} and Mg^{2+} content in drinking water.

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The Trophic Influence of the Salivary Glands on the Oral Mucosa

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The neurotrophic maintenance of the oral mucosa (OM) can be provided by neurotransmitters either of the blood or of the saliva, because the mucous membrane has no efferent but only afferent innervation [5]. Catecholamine (CA) content in the saliva depends upon the state of the sympathetic innervation in the salivary glands [1]. Since the participation of specific receptors is necessary for the utilization of the transmitters in tissue, we aimed to elucidate whether there is a correlation between the CA

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content in the salivary glands, in the saliva, and in the OM.

MATERIAL AND METHODS

The experiments were carried out on 59 nonpedigree rats of both sexes weighing 150 g. The animals were divided into the following groups: intact animals with basal salivary secretion; rats with salivary secretion induced by pilocarpine (1 mg/kg subcutaneously, 40 min); rats subjected to irrigation of the OM with physiological saline (40 min); rats in which the submaxillary and parotid glands were extracted 24 hours and 8 days before the measurements.

In order to synchronize the activity of the salivary glands, all the animals received nothing but water 24 hours before the acute experiment.

Pieces of tissue were taken from the left submaxillary salivary gland and the OM of narcotized rats (nembutal, 40 mg/kg). The noradrenalin (NA) and adrenalin content in the biological material was determined using electrochemical detection by high-performance liquid chromatography [2]. The data were subjected to statistical analysis using the Student test [3].

RESULTS

The measurement of CA content in the submaxillary salivary glands and in the OM of intact animals showed differences of NA content in these tissues (see Table 1). NA content in the salivary gland tissues was maximal at the basal level of secretion, *i.e.*, when the activity of the glands was reduced. An injection of pilocarpine, inducing secretion, led to a decrease of NA concentration in the glandular tissue at the end of the secretory cycle (40 min after injection). The same regularities of changes in the NA content were found in the OM. A relatively high NA concentration was determined in the OM at the basal level of secretion, whereas a twofold decrease of this parameter was observed in the case of induced secretion. The NA concentration determined in the saliva at the basal level of secretion (0.96±0.17 mg/ml), was significantly lower than in the tissues of the OM and of the salivary glands (at the basal level of secretion no CA content determination was performed because of the small amount of saliva).

The CA content found in the OM was significantly different from that in the saliva in the case of induced secretion. This suggested that abundant secretion of saliva washes CA out of the mucous membrane, the CA content being significantly greater in the OM compared with the saliva. In order to verify this, irrigation of the OM with physiological solution was performed for 40 min during the period of basal secretion. The data in Table 1 show that such a procedure caused a notable decrease of CA content in the OM with respect to that observed in the case of induced secretion. The results suggest that the OM is "saturated" with CA mainly during the period of basal secretion. The next question concerned the main source of the CA delivered to the OM. Basing ourselves on our knowledge of salivary secretion of CA, we aimed to elucidate how the CA content in the OM changes at diverse times of desalivation. To that end, a full resection of the main salivary glands was performed in rats, and then the CA content was determined in the OM. The data in Table 1 show that after resection of the main salivary glands, the

TABLE 1. Catecholamine Content (ng/g) in Tissues of Submaxillary Salivary Glands and in Oral Mucosa in Rats *(M±m)*

Experimental conditions	Mucosa		Glandular tissue	
	NA	Adrenalin	NA	Adrenalin
Intact rats	252.3±39.1 (12)	60.3±8.3 (12)	2524.7±197.8 (17)	99.5±9.6 (17)
Induced secretion of saliva	109.3±10.6* (15)	41.9±7.2 (15)	1800.0±213.7* (15)	84.3±8.7 (15)
Irrigation with physiological solution	132.1±18.2* (8)	48.4±10.7 (8)	–	–
24 hours after resection of main salivary glands	108.0±15.1* (8)	61.6±9.7 (8)	–	–
7 days after resection of main salivary glands	103.3±13.3* (10)	58.6±8.5 (11)	–	–

Note: The number of experiments is shown in parentheses, *: $p<0.05$ vis–a–vis intact rats.

CA content dropped significantly within the first 24 hours, and such a decrease persisted even on the 7th day after the operation.

Thus, CA (mainly NA), are delivered to the OM during the period of basal secretion and are expended during induced secretion. In this respect the neurotrophic maintenance of the OM shows a similarity with another organs, where CA supplies are replenished during the normalization of activity [4].

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Effect of Eicosapentaenoic Acid and the Calcium Antagonist Isradipin on Lipid Metabolism and Erythrocytes in Cholesterol-Fed Rabbits

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Hypercholesterolemia is considered to be a risk factor for atherosclerosis. Fat of arctic animals (seals and others) containing a high concentration of eicosapentaenoic acid (EPA) is known to possess a cholesterol-lowering effect [1]. This property allows it to be used in different states accompanied by pronounced hypercholesterolemia, in particular in atherosclerosis. There is no agreement regarding the antiatherogenic effect of dihydropyridine calcium antagonists. Several data demonstrate that such an effect does exist [5], while others show no positive effect of these drugs on the level of blood serum lipids [6]. Of particular interest is the calcium antagonist isradipin, which is successfully employed for the treatment of arterial hypertension and coronary heart disease due to its pronounced hypotensive and vasodilating effects. One of the possible mechanisms of EPA action is a change of the lipid metabolism in cell membranes, as has been shown in erythrocytes [4]. Whether isradipin exhibits such an effect is not understood.

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