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TO A QUESTION OF A NEUROPHYSIOLOGY OF CEREBRAL CORTEX WITH SUBCORTICAL STRUCTURES OF A BRAIN

One of current problems of the modern neurophysiology is relationship of bark of larger hemispheres with subcortical structures of a brain. Among these structures a specific place is held by the hypothalamus differing in variety of the functional manifestations and playing an important role in a regulation of emotional and motivational, somatic and vegetative components of the composite reactions of adaptive behavior.

Among the problems of this circle which didn't get the exhaustive permission, a specific place is held by researches of intimate neurophysiological mechanisms of the ascending subthalamic influence on activity of projective and associative systems of a cerebral cortex.

As it is noted by authors of literature that the research of mechanisms of activation of areas of bark is obviously important for clarification of their integrative activity, meanwhile, sources of upflows of the exaltations activating neurones of sensoric-motoric bark are still insufficiently studied and there is no clear idea of the functional value separate subcorticaland in particular diencephalic structures in a genesis of bioelectric reactions in this zone of a cerebral cortex.

Now process of an aging draws an attention of a great number of researchers. The difficult mechanisms in which the most various molecular systems - immunomodulators, growth factors, hormones, neurohormones, receptors and many other proteins share, as we know, are involved in aging process. According to some authors, an aging can be started by 2 mechanisms: shortening telomere and DNA damage that induces a cellular aging.

It is known that an aging of an organism in many respects depends on change of a neuroendocrinal regulation.

It is apparent that the condition of neurosecretory cages at late stages of an ontogenesis affects their morphofunctional activity and determines rates and the direction of an aging of target organs.

At the same time involutional changes of neurones of a brain, genetic "triggers" of an aging and way of utilization of the growing old cages are almost not studied.

Molecular mechanisms of cellular death at late stages of an ontogenesis aren't defined. The available literary data are provided by the results received generally on cellular cultures i.e. in the conditions of isolation of the uniform cages.

Foreign and domestic authors noted that a hypothalamus — department of the intermediate brain which possesses the leading role in a regulation of many functions of an organism, first of all a homeostasis. The hypothalamus is located on

the basis of a brain and limited in front to an optic chiasm, behind mamillary bodies, paths of optic nerves on each side dispersing. From above the III ventricle of a brain takes root into the subthalamic area. The mass of a hypothalamus of the adult is about 4 g. Conductive paths intimately connect a hypothalamus with the next structures of a brain. The interrelation of a hypophysis and a hypothalamus is carried out through portal vessels of an adenohypophysis, which walls is penetrable for large proteins. Groups of cages form from efficient cores of a hypothalamus among which distinguish 32 couples. The core is formed of congestions of the nervous cages which don't have secretory activity and the neurosecretory cages concentrated generally about walls of the III ventricle, these cages produce the active materials — neurohormones.

In front area of a hypothalamus the neurosecretory cages forming supraoptic and paraventriculary cores are concentrated. Neurosecretory cages of a supraoptic core produce mainly a vasopressin, paraventricular— Oxytocinum. The grey hillock cores which are arcuately covering a hypophysis funnel lie in the average area of a hypothalamus, around bottom edge of HI of a ventricle of a brain. Up and lateral from them there are large ventromedial and dorsomedial cores. In back area of a hypothalamus medial and lateral cores of a mastoid body are located. To the front of mastoid bodies acts the bottom of the III ventricle in the form of a gray hillock, this ledge is extended in the funnel passing in the distal direction in hypophysiarleg and further in a back share of a hypophysis. An expanded upper of a funnel — the median eminence is covered by an ependyma which the layer of nervous fibers of a hypotalamo-hypophysial bunch follows. The outside of the median eminence is formed by foot neuroglial cells (ependim) between which numerous nervous fibers lie. In these nervous fibers adjournment of neurosecretory granules is observed. Ventromedial cores of a hypothalamus are considered to be the center of saturation, a lateral part of a hypothalamus — the center of hunger. Damage of ventromedialn kernels, as a rule, is followed by an obesity. Malfunction of a hypothalamus is shown only at bilateral defeat. In a front hypothalamus the neurones sensitive to heat and cold are located; the back hypothalamus provides a thermolysis. Under the influence of endogenic pyrogens (interleukin-1), for example, at infectious diseases the front hypothalamus produces E2 Prostaglandinum much that is followed by decrease of a thermolysis and a fervescence. In a front hypothalamus, besides, the center of a dream which damage leads to insomnia is located. Damage of a ventromedial part of a hypothalamus and pre-mamillaric area is followed by violation of a volatile memory. The front hypothalamus stimulates a parasympathetic, and back hypothalamus — sympathetic department of the autonomic nervous system. Hypophysotropical hormones of a hypothalamus known now subdivide into the hormones strengthening (releasing-hormones, liberin) and braking (statins) selection of the corresponding tropic hormones.

More narrow since the beginning of the 70th years of the 20th century it became apparent that the role of liberin in an organism doesn't come down to the scheme one hormone — one liberin (statins).

Tiroliberin was capable to stimulate products and TTG, and Prolactinum; Honadolyberin was one general releasing-hormone both for LG, and for FSG. Influence of a somatostatin on an organism was unique: this substance reduces not only basal and stimulated secretion GR, but also selection of AKTG and

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Prolactinum at their some forms patologicalhypersecretion, inhibits secretion of a glucagon, insulin, hectare-strina and also a secretin, cholecystokinin, vasoactive intestinal- peptide leg.

The role of liberin and statin doesn't come down only to a regulation of activity of an hyphosis. Somatostatin and thyroliberin have a direct action on a CNS, causing various behavioural and motive reactions.

By experts it is established that idea of exclusively subthalamic origin of releasing-hormones is rejected now. The fabric origin of liberin and statin is much more extensve.

And also it is noted in literature that besides a hypothalamus, neuropeptids are developed in an epiphysis, others out of subthalamic departments of a brain (a forebrain, the tail of the intermediate brain, a metencephal, motor neurons of a spinal cord, a core of cranial nerves), cages pancreas and GIT. At a section (defeat, compression) of a hypophysis leg levels L G, FSG, GR, TTG and AKTG in a blood plasma decrease whereas Prolactinum level, on the contrary, increases. The specified phenomenon is known under the name "syndrome of the isolated hypophysis". Thus, the majority of hormones of a hypophysis is under mainly stimulating influence of a hypothalamus unlike secretion of Prolactinum which is under the tonic inhibiting influence of a hypothalamus. At a low section of a leg of a hypophysis secretion of a vasopressin and Oxytocinum axons of the median eminence remains, and not diabetes mellitus doesn't develop. During removal of a hypothalamus or a high section of a leg of a hypophysis the products of a vasopressin and Oxytocinum and also all hormones of a hypophysis, except Prolactinum, drop out.

Thus, on the basis of these references that studying of this problem has the value.

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