GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 11, Issue 10, Oct. (2023)

STRUCTURE AND FUNCTIONS OF THE HUMAN NERVOUS SYSTEM

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ABSTRACT

This article contains information about the structure of the human nervous system and its main activity, its importance and role in human development.

Keywords: neurology, neurosurgery, ancient neurology, modern neurology, motor, sensorimotor, brain stem, medulla oblongata, Voroleiv bridge, cerebellum, peduncle.

Some doctors consider the neurological history to be as important as the neurological examination. Other doctors believe that a neurological history exaggerates the nature of the disorder or disease, while a neurological examination puts it into perspective. Experienced doctors believe that a successful diagnosis depends on asking the right questions and listening carefully to the answers.

Evolution of the nervous system

The brain. (encephalon) The brain is located inside the skull. The individual weight of the brain depends on the body weight and ranges from 960 to 2000 grams. It should be said that the size of the brain does not represent intelligence. Human intelligence is 1375 g for adults, 1275 g for women, and 330-340 g for newborns, depending on the physiological characteristics of the cells of the cerebral cortex, chemical composition, and exercise. the brain consists of two hemispheres, that is, the right and left hemispheres. these hemispheres are divided into two by an upper vertical groove. On the lower side of the penis there is a package-like body formed from white matter. the brain stem consists of medulla oblongata, pons of Voroleyev, cerebellum, and peduncles.

The brain has 3 surfaces: - top part - convex part; - inner part; - the basal part or the base of the brain. the hemispheres of the brain consist of the forehead, top, temporal and occipital parts. centers are located in these places, and each part has its own task. The forehead part is for movement, the top part is for sensation, the temple part is for hearing, taste, smell, and the nape is for vision. The lateral ventricles are the cavities of the cerebral hemispheres. the two hemispheres are connected to each other by the corpus callosum.

Histologically, the brain consists of 2 parts. White matter is composed of conductive pathways, and gray matter is composed of nerve cells. the white matter of the brain is the conductive pathways. the paths of intuition and movement pass through these places. these, in turn, are divided into:

• associative fibers - these fibers connect the centers of one hemisphere with each other;

• commissural fibers - connect the centers of two hemispheres;
• projection paths - connect the centers in the cortex of the brain with the spinal cord. In the white matter there is also an internal capsule, from which the ascending and descending conduction pathways pass. from the anterior thigh of the internal capsule - fronto-bridge paths of the brain; from the back thigh - cerebral cortex, spinal cord pathways (movement, sensation, vision, hearing pathways); and the movement paths of the nerves of the cranial brain pass through the knee part. The gray matter of the brain consists only of nerve cells. this gray matter is called cerebral cortex, its thickness is 5 mm. the cerebral cortex consists of 6 layers of nerve cells. there are about 14 billion neurons in the cerebral cortex. A person is born with so many cells, but at first these cells are immature, then they gradually mature.

During the development of the embryo, the brain initially forms the first three bubbles in front of the brain canal: 1. Front 2. Middle 3. Rhombus.

When the embryo is 3 weeks old, the first and third follicles are divided into 2, resulting in 5 follicles. From these five follicles, the five parts of the brain develop. The first bubble is called the forebrain, from which the large hemispheres of the brain develop. The space inside becomes the lateral ventricles.

The second bubble is called the intermediate brain, from which the visual bulges and the subbulbar part develop. The space inside becomes the 3rd ventricle. The midbrain develops from the third vesicle. The space inside becomes the Silviyev canal. After the fourth bubble, the posterior (hind) brain develops. The medulla oblongata develops from the fifth medulla. 4-5 - space of bubbles becomes 4 - ventricle.

At the age of 5 months, the embryo begins to form in the large hemispheres of the brain. At 6 months, the hemispheres surround the brain stem.

A newborn baby has all the nerve cells. But they are small, anatomically - physiologically underdeveloped. Neurons grow, enlarge, and change their shape. Nerve fibers become myelinated, the myelination of vision, balance and hearing analyzers begins in the mother's womb and ends in the first months after the birth of the child. During the child's life, brain cells are separated, separate nerve centers are formed and develop. The average weight of the brain of a newborn child is 350-390 g. It is 450 g when it is one month old, 700-800 g when it is one year old, 1260 g for boys and 1190 g for girls when it is 7 years old.

The weight of the brain is the largest at the age of 20-30, and then gradually decreases.

Development of the human nervous system

The brain is divided into 2 parts according to its origin, structural features and functional importance:

• brain stem;
• large hemispheres of the brain.

The brain stem includes: medulla oblongata, hindbrain, midbrain, and midbrain.

The medulla oblongata is an integral extension of the spinal cord, located above the first cervical vertebra and connected to Varoliyev's bridge. The back is similar to the structure of the spinal cord. The egates passing through the anterior and posterior, middle and lateral parts of the spinal cord continue in the medulla oblongata, and the central channel is located inside. The ventral and dorsal spinal nerves exit the spinal cord. The middle egate located in the front and

back of the medulla divides it into two parts. Both branches, in turn, are divided into systems through the side egates that pass from the back. Its ventral part is made up of the olives, and the dorsal part is made up of the lower or back legs of the cerebellum. Olives are ovoid and consist of nerve cells. Their task is to keep the body upright. It is connected to the cerebrum through many conductive pathways. Cerebellar peduncles consist of nerve fibers. They rise up and limit the side of the lower corner of the fourth ventricle. This part is called a rhombic cavity. From the lateral columns of the long brain, the roots of the sublingual - XII pair, additional - XI pair, stray - X pair, tongue-throat - IX pair of cranial nerves emerge. On the dorsal side of the medulla, on both sides of the dorsal notch, there is a posterior column, which is a continuation of the thin, pon-like bundles in the spinal cord.

The gray matter in the spinal cord is scattered in the medulla oblongata, and a small part of this pattern is in the bottom of the rhomboid fossa. Most of it is distributed on the surface of the medulla oblongata and is called the nuclei of the medulla oblongata. If the medulla is damaged, the person or animal will die.

Spinal cord. The spinal cord is located in the longitudinal canal of the spine. It is 41–45 cm long, 1–1.5 cm thick, and weighs 34–38 g in adults. The spinal cord begins at the top of the first cervical vertebra and ends at the top of the second lumbar vertebra. in newborns, it ends in the middle of the second and third lumbar spine segments. The spinal cord is neck and waist wide, and this is due to the large number of nerve fibers in the arms and legs. The spinal cord is divided into segments. A segment refers to two pairs of roots of the spinal cord. The spinal cord consists of 31–32 pairs of segments. these are: 8 necks, 12 chests, 5 backs, 5 rumps, 1-2 tail segments.

Each segment of the spinal cord has 2 pairs of roots, the anterior pair of which are motor roots, and the posterior pair are sensory roots. The internal structure of the spinal cord can be seen in its cross-section (Fig. 3). in which there is a butterfly-shaped gray matter in the center of the cross-section, surrounded by white matter. Gray matter consists of nerve cells and their axons. In the front branch of the spinal cord there are motor cells, in the back branch there are sensory cells, and in the side branches there are autonomic nerve cells.

The upper brain (metencephalon) includes Varoliyev's bridge (pons varoli) and cerebellum. The Varoliyev bridge is a continuation of the medulla oblongata, its ventral surface is convex, it is bounded by the medulla oblongata from below, and the midbrain from above. The dorsal surface of the bridge faces the fourth ventricle. Varoliyev's pons, like the cerebrum, is composed of white and gray matter. In the gray matter of the pons there are bodies of the V-VII pairs of cranial nerves and the private body of the pons. From the depth separating the pons from the medulla, the VIII pair of auditory, VII pair of facial, and VI pair of distal cranial nerves come out. The bridge mainly consists of ascending and descending passageways. The descending pathways consist of a pyramidal bundle, and the ascending pathway consists of a medial loop. Transverse fibers of the bridge form the middle leg of the cerebellum and connect the bridge with the cerebellum.

Development of motor and sensorimotor functions.

The brain (cerebellum) consists of the right and left hemispheres, which are connected by a worm-like part. The cerebellum develops in parallel with the cerebral hemispheres. That person

will have developed well. The cerebrum is located in the lower nape of the inner base of the skull, the large cerebral hemispheres are located at the base of the nape, and their weight is 150 g. On the surface of the cerebellum there are arcuate egates and pustules, and the egates divide the cerebrum into parts. Brain has 3 pairs: upper, middle and lower legs. The upper leg connects the cerebellum with the four vertices and cerebral hemispheres, the middle leg with the pons, the lower leg with the medulla oblongata and the spinal cord. If the cerebrum is cut, its upper part is made up of thin gray matter and 2 layers (granular and stellate) cells can be seen.

Underneath the gray matter is the white matter, the nerve fibers of which are spread out like the veins of a tree leaf. It is called the tree of life. Among the white matter there are four pairs of bodies - scattered gray matter.

Nerve fibers from the frontal, occipital and temporal sections of the cortex of the cerebral hemispheres enter the cerebellum. The cerebellum receives impulses from receptors in the body, from the trunk of the internal nerve, from the cortex of the large hemispheres of the brain, and participates in the coordination of some muscles and the maintenance of muscle tension. Further investigations revealed that there are important vegetative nerve centers in the cerebrum.

The intermediate brain (diencephalon) is covered by the cerebral hemispheres, which includes the optic lobes, the subaerial lobes, and the geniculate body.

References:

1. Polathojayeva M.R. Clinical foundations of defectology. Study guide. T.: TDPU - 2013.
2. D. Madazizova. Clinical foundations of developmental disabilities in children. Study guide. T.: TDPU - 2017.
3. Mahmudovna, Ahmedova Mastura. "DIDACTIC FOUNDATIONS OF COGNITIVE ACTIVITY AND ITS DEVELOPMENT IN STUDENTS." INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429 11.12 (2022): 193-198.
4. Meliboyev, T. T. "ENVIRONMENTAL EMERGENCIES THEIR CLASSIFICATION AND DESCRIPTION. Protection MAKING EVENTS." INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429 11.12 (2022): 212-219.
5. Umarova, S., A. Ortikova, and M. Axmedova. "CONDITIONS FOR THE OCCURRENCE OF CONFLICTS IN LABOR TEAMS AND METHODS OF CONFLICT ANALYSIS." Science and innovation 2.B1 (2023): 326-333.
6.Minavvarovna, Umarova Saboxon. "BASIC PATHOLOGY OF CHILDREN'S BRAIN." Journal of Science-Innovative Research in Uzbekistan 1.6 (2023): 271-276.
7. Minavvarovna, Umarova Saboxon. "PSYCHO-PHYSIOLOGICAL CHARACTERISTICS OF THE DEVELOPMENT OF SPEECH-IMPAIRED CHILDREN." Galaxy International Interdisciplinary Research Journal 11.3 (2023): 524-529.
8. Ibragimovna, Turg‘unboyeva Zulxumor. "ZAIF ESHITUVCHI O‘QUVCHILARNI NUTQIY SIFATLARINING RIVOJLANISH XUSUSIYATLARI." Science Promotion 1.2 (2023): 131-138.

9. Raximovna, Teshaboeva Feruza. "RINOLALIYADA OPERATSIYADAN KEYINGI KORREKSION ISHLAR." Conference Zone. 2023.
10. O'ghiloy, Rakhimova Khurshidakhon Sadikovna Kurbanuva. "CHILDREN WITH LOCAL MOVEMENT DEFECTS." Confrencea 3.03 (2023): 226-230.
11. Raximova, Xurshidaxon. "NATIONAL AND FOREIGN ADVANCED TRENDS IN HIGHER EDUCATION EFFICIENCY IMPROVEMENT." JOURNAL OF NORTHEASTERN UNIVERSITY (2022).