Thematic plan - Neuroanatomy

Lectures

1. General information about the structure of the central nervous system.
2. Pathways of nervous system
3. General information about cranial nerves. V cranial nerve.
4. VII cranial nerve
5. Autonomic nerves system. Parasympathetic part.
6. Autonomic nerves system. Sympathetic part.

Seminars

1. General information about the structure of the nervous system. Neurons. Gray and white matter. The concept of reflex activity. The concept of the reflex arc: simple and complex. The links of the reflex arc: afferent, associative and effector.
   Spinal cord, medulla oblongata: external and internal structure. A segment of the spinal cord. Segmental and conductive apparatus of the spinal cord. The composition of the spinal cord ropes and a brief description of the conductive pathways contained in them. The posterior and anterior roots of the spinal cord. Medulla oblongata: boundaries, external structure, gray and white matter of the medulla oblongata.

2. Pons: external and internal structure, topography. The cerebellum. Anatomical parts of the cerebellum. Connections of the cerebellum with medulla oblongata, pons and midbrain. Gray and white matter of the cerebellum. The nuclei of the cerebellum. Rhomboid brain: composition, cavity of the rhomboid brain - IV ventricle (its walls, connections). Rhomboid fossa, its relief, projection of cranial nerve nuclei on the rhomboid fossa.

3. The midbrain. Quadrigeminal plate, its connections with other parts of the brain stem. Topography of white and gray matter. Four-holms nuclei, red nuclei, black substance. The nuclei of the III and IV pairs of cranial nerves, the place of their exit from the substance of the brain and the cranial cavity. The legs of the brain, their conductor composition.
   The intermediate brain. External and internal structure, topography. Parts of the intermediate brain: visual tubercles, suprathalamic, subthalamic, hypothalamic region. Pathways and centers of the middle and intermediate brain. The third ventricle, its walls and connections. Endocrine glands of the intermediate brain: pituitary gland (neurohypophysis), epiphysis.

4. The brain. The cortex of the hemispheres of the brain. Relief of the upper lateral,medial and lower surface of the brain. Dynamic localization of functions in the cerebral cortex: projection and associative nerve centers. The white matter of the cerebral hemispheres: projection and associative fibers, inner capsule. Basal nuclei: caudate nucleus, pale ball, shell, fence, almond-shaped nucleus. Striated body, inner, outer and outer capsules. Brain adhesions (corpus callosum, anterior and posterior white adhesions). The hippocampus. Lateral ventricles, their shape, parts and connections.

5. The membranes and intervertebral spaces of the brain and spinal cord. Vessels of the brain. Vascular plexuses. Cerebrospinal fluid: production, circulation, outflow.

6. Features of afferent, efferent (pyramidal) and extrapyramidal pathways (schemes). Pathways of general sensitivity: spinothalamic tract, Fasciculus gracilis et Fasciculus cuneatus tracts, tractus spinocerebellaris anterior (Gowers` pathway), tractus spinocerebellaris posterior (Flechsig`s pathway). Pyramidal pathways: tractus

corticospinalis, tractus corticobulbaris. Extrapyramidal pathways: Tractus rubrospinalis, tractus tectospinalis, fasciculus longitudinalis medialis, tractus reticulospinalis, tractus vestibulospinalis.

7. Analyzers: Olfactory analyzer and olfactory analyzer pathways. I cranial nerves. The organ of vision. The eye and the auxiliary organs of the eye. Muscles of the eyeball. The path of the visual analyzer. II, III, IV and VI pairs of cranial nerves.

8. Organ of hearing and balance (vestibular cochlear organ). VIII pair of cranial nerves. Special sensitivity pathways: vestibular and auditory.

9. V and VII pairs of cranial nerves, their topography and areas of innervation

10. The pathway of special sensitivity: IX, X, XI and XII pairs of cranial nerves, their topography and areas of innervation

11. Spinal nerves. Formation of spinal nerves. Branches of spinal nerves: meningeal, posterior, anterior. Formation of nerve plexuses. Anterior branches of thoracic nerves. Intercostal nerves. The posterior branches of the spinal nerves. The cervical plexus, its formation, structure, topography, branches. Diaphragmatic nerve.

12. The brachial plexus, its formation, structure, topography, short and long branches. Nerves of the upper limb. Musculocutaneous, median, ulnar, radial nerves. Their formation, topography.

13. Lumbar plexus: formation, structure, topography, short and long branches.S acral plexus: formation, structure, short and long branches. Sciatic, tibial, common peroneal nerves, their branches. Innervationof individual muscle groups and skin areas. Coccygeal plexus, coccygeal nerve, its branches, areas of innervation.

14. Features of innervation of the organs of the head and thoracic cavity: tongue, salivary glands, large parotid gland, lacrimal gland, heart, bronchi, lung.

15. Features of innervation of the abdominal and pelvic organs: liver, gallbladder, pancreas, stomach, small intestine, (duodenum, skinny, iliac), colon (proximal and distal, rectum); kidneys and adrenal glands, uterus, bladder.