Topics for independent guided work of students at lectures on the discipline “Neurology and Neurosurgery”, 4th year

Lecture No. 1 “Sensitivity and its disorders.”

1. Outstanding representatives of the world neurological and neurosurgical schools.
2. The main stages in the development of Belarusian neurology and neurosurgery.
3. Belarusian neurologists and neurosurgeons who made the most significant contribution to the development of neurology and neurosurgery.
4. Types of damage to peripheral nerves.
5. Receptors, varieties, structure.
6. Analyzer, definition, types.
7. Law of eccentric arrangement of long conductors.
8. Complex types of sensitivity.
9. Biopsychosocial model of pain.
10. Theories of pain.
11. Pathogenetic classification of pain.
12. Neuropathic pain.
13. Phantom pain.
14. Discriminatory sensitivity, definition, research.

Lecture No. 2. "The motor system and its disorders."

1. Reflex arc of the deep reflex.
2. Voluntary and involuntary movements.
3. Betz pyramidal cells.
4. Assessment of muscle strength.
5. Causes and types of muscle hypertension.
6. Causes and types of muscle hypotension.
7. Structure of the cerebellum.
8. The structure of the striatal section of the extrapyramidal system.
9. Structure of the palliadic section of the extrapyramidal system.
10. Chorea, causes, clinical picture.
11. Muscular dystonia, causes, clinical picture.
12. Tics, causes, clinical picture.
13. Athetosis, causes, clinical picture.
14. Protective reflexes.
15. Postnotonic reflexes of infancy.

Lecture No. 3. "Focal lesion syndromes."

1. Syndromes of damage to the 1st pair of cranial nerves.
2. Syndromes of damage to the 2nd pair of cranial nerves.
3. Syndromes of damage to the 3rd pair of cranial nerves.
4. Syndromes of damage to the 4th pair of cranial nerves.
5. Syndromes of damage to the 5th pair of cranial nerves.

6. Syndromes of damage to the 6th pair of cranial nerves.
7. Syndromes of damage to the 7th pair of cranial nerves.
8. Syndromes of damage to the 8th pair of cranial nerves.
9. Syndromes of damage to the 9th pair of cranial nerves.
10. Syndromes of damage to the 10th pair of cranial nerves.
11. Syndromes of damage to the 11th pair of cranial nerves.
12. Syndromes of damage to the 12th pair of cranial nerves.

Lecture No. 4. "Cerebral hemispheres and higher cortical functions."
1. Cytoarchitecture of the cerebral cortex.
2. History of studying the localization of functions in the cerebral cortex.
3. Model of the functioning of speech centers.
4. Varieties of speech and their formation.
5. Methods for assessing speech.
6. Study of gnosis.
7. Study of praxis.
8. Memory research.
9. Types of thinking disorders.
10. Study of thinking.
11. Stages of normal sleep.
12. Sleep disorders.
13. Sleep study.
14. Syndromes of clouding of consciousness.
15. Qualitative disturbances of consciousness.

Lecture No. 5. “The autonomic nervous system. Blood supply to the brain and spinal cord."
1. Idiopathic peripheral autonomic neuropathy
2. Complex regional pain syndrome type I
3. Complex regional pain syndrome type II
4. Familial dysautonomia
5. Autonomic dysreflexia
6. Autonomic nervous system disorder caused by alcohol
7. Sweating disorders
8. Salivation disorders
9. Lacrimal secretion disorders
10. Sexual dysfunction
11. Anomalies in the structure of the Circle of Willis

Lecture No. 6. “Cerebral meninges, cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome. Meningitis."
1. Influenza meningitis.
2. Mumps meningitis.
3. Secondary meningitis.
4. Syphilitic meningitis.

5. Meningitis due to Lyme Borreliosis.
6. Glymphatic system of the brain.
7. Blood-brain barrier, structure.
8. Blood-brain barrier, functioning.
9. Dislocation of the brain.
10. Acute intracranial hypertension.
11. Congenital intracranial hypertension.
12. Neuroimaging for intracranial hypertension.
13. Measurement of intracranial pressure.
14. Tests during lumbar puncture.

Lecture No. 7 “Infectious-allergic and autoimmune diseases of the nervous system”

1. Acute disseminated encephalomyelitis pathogenesis
2. Types of acute disseminated encephalomyelitis
3. Treatment of acute disseminated encephalomyelitis
4. Autoimmune encephalitis pathogenesis
5. Autoimmune encephalitis classification
6. Autoimmune encephalitis clinic
7. Autoimmune encephalitis treatment
8. Clinical differences between acute disseminated encephalomyelitis and multiple sclerosis
9. Clinical isolated multiple sclerosis syndrome
10. Radiological isolated syndrome.

Lecture 8: Brain tumors

1. Molecular genetic diagnosis of astrocytoma Grade 3
2. Clinical aspect of paraganglioma of the middle ear
3. Histological aspect of perineuroma
4. Morphological characteristics of schwannoma
5. Treatment of brain tumors with Gamma Knife
6. Clinical aspect of neurofibroma of the sciatic nerve
7. Craniography for meningiomas
8. Signs of hemispheric brain tumors on CT
9. Conformal (3D) irradiation of brain tumors
10. Signs of brain tumors during echoencephaloscopy
11. Diagnosis of Rathke's pouch cyst using MRI
12. Signs of skull bone tumors on a scintigram
13. Possibilities of EEG in diagnosing brain tumors
14. Clinical signs of intraventricular brain tumor
15. Medical rehabilitation of patients after surgery for a brain tumor
16. Signs of a pituitary tumor on MRI
17. Treatment of brain tumors with cyberknife
18. Treatment of glial brain tumors with monoclonal antibodies
19. Complications after removal of brain tumors

20. Pathomorphological characteristics of a malignant tumor of the peripheral nerve sheath.

21. Concept of malignant melanotic tumor of the nerve sheath

22. Hormonal characteristics of corticotropinoma

23. The role of genetic factors in the development of brain tumors

24. Stereotactic radiosurgery of brain metastases

25. Hereditary syndromes, the structure of which includes brain tumors26. Complications of chemotherapy treatment of brain tumors