MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY

APPROVED
by First Vice-Rector, Professor
_____ S.V. Gubkin
_____
Reg. # УД-2.576Са/1617уч.

NEUROLOGY AND NEUROSURGERY

Curriculum of higher educational institution

In the educational discipline for the specialty
1-79 01 07 « Dentistry»

Minsk BSMU 2016

The curriculum is based on the standard educational program "Neurology and Neurosurgery", approved 31.08.2016, registration № ТД-L.576/тип.

COMPILERS:

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RECOMMENDED FOR APPROVAL:

Department of Nervous and Neurosurgical Disease Education "Belarusian State Medical University"
(protocol № 20 of 12.05.2016);

Methodical Commission pediatric disciplines educational establishment "Belarusian State Medical University"
(protocol № 9 of 26.05.2016)

EXPLANATORY NOTE

Neurology and Neurosurgery is a discipline, containing information on the etiology, pathogenesis, clinical manifestations of nervous system diseases, their diagnosis, treatment and prevention.

This training program for the discipline "Neurology and Neurosurgery" provides teaching and studying of the latest achievements of science and technology, practical health care in the diagnosis, treatment and prevention of neurosurgical diseases and diseases of the nervous system, as well as patient rehabilitation.

This training program sets current problems of learning and teaching the discipline aimed at developing students academic, social, personal and professional competence, problem-based clinical thinking.

Tasks of the discipline consists in the acquisition of academic competencies the students, which are based on the ability to self-search training and information resources, developing the methods of acquirement of knowledge and understanding:

- Skills in using modern neurological and neurosurgical terminology;
- Knowledge about the most common signs and symptoms, diseases of the central and peripheral nervous system;
- Basic technologies of investigating nervous system functioning and diagnosis of neurologic and neurosurgical pathology;
- Principles of clinical, laboratory and instrumental diagnosis used in neurosurgical diseases and the diseases of the nervous system and the ability to interpret the results;
- Intervention strategies in urgent situations in neurology and neurosurgery.

Teaching problems of discipline consists in the formation of social and personal and professional competences, the foundation of which lies in the knowledge and application of:

- Methods of examination of patients with neurological and neurosurgical pathology contributing to the formation of clinical thinking in compliance with the rules of medical ethics and deontology;
- Methods of diagnosis of neurological and neurosurgical diseases;
- Health care methods in case of emergency in neurology and neurosurgery;
- Methods of primary and secondary prevention of stroke;
- Methods of prevention of the most common and socially significant diseases and neurological rehabilitation of patients with neurological and neurosurgical pathology;
- Medicines used in neurology and neurosurgery.

Teaching and successful studying of the discipline "Neurology and Neurosurgery" is based on acquired knowledge and skills on the following subjects:

Human Anatomy. Anatomic fundamentals of the structure of the nervous system.

Histology, Cytology and Embryology. Features of the histological structure and embryogenesis of the central and peripheral nervous system.

Pathological Anatomy. Morphological fundamentals of neurological pathology: cerebrovascular, inflammatory, neurodegenerative, neoplastic, traumatic.

Normal Physiology. Fundamentals of normal physiological activity of the nervous system.

Pathological Physiology. The most important pathophysiological manifestations in nervous system impairments.

Biological Chemistry. Fundamentals of metabolic processes in the nerve tissue in normal and pathological conditions.

Neurovisualisation. X-ray findings and other neuroimaging methods of examination in the diagnosis of neurological and neurosurgical pathology.

Pharmacology. Mechanisms of action of medical drugs used in neurology and neurosurgery, their dosages and routes of administration.

Surgical Diseases. Principles of the central and peripheral nervous system surgery.

Maxillofacial surgery and dental surgery. Principles for evaluation of the functional state of the cranio-facial region.

The study of educational discipline "Neurology and Neurosurgery" must provide formation of the students' academic, social, personal and professional competences.

Structure of the training program. The training program on the subject "Neurology and Neurosurgery" consists of three sections: "General Neurology", "Specific Neurology" and "Neurosurgery."

As a result of study discipline "Neurology and Neurosurgery" the student must

know:

- Etiology, pathogenesis, clinical features, diagnosis and treatment of the most common diseases of the nervous system;
- Clinical and classification of the diseases of the neurostomatology diseases;
- Methods of neurosurgical treatment of trigeminal neuralgia;
- The indications for use of diagnostic methods of the diseases of the nervous system.

be able to:

- To investigate and detect abnormalities in the cranial nerves;
- Identify neurological symptoms;
- A differential diagnosis and treatment of diseases with a toothache, pain in the front area of the oral cavity.

possess:

- Methods of interpretation of the results of studies of radiation (X-rays, tomography) of the skull, maxillofacial and spine.

The structure of a typical "Neurology and Neurosurgery" training on a subject matter of the program consists of three sections: "General Neurology," "Specific Neurology" and "Neurosurgery".

In total, the study of the discipline given to 48 academic hours. Distribution of contact hours by type of training: 16 hours of lectures, 15 hours of practical training; 17 hours of independent work of the student.

Current certification is carried out in accordance with the curriculum of the specialty in the form of set-off (8th semester).

Form of education - full-time day.

THEMATIC PLAN OF IN-CLASS STUDIES

Theme	Hours	
	lectures	practical classes
1	*2*	*3*
1. GENERAL NEUROLOGY	**4**	**5**
1.1. Introduction to the discipline. History of the development of neurology and neurosurgery. Structural and functional organization of the nervous system	2	4
1.2. Instrumental methods in the diagnosis of the nervous system diseases		
1.3. Sensitivity and its impairment		
1.4. Motor system and its lesion syndromes		
1.5. Cranial nerves. Examination methods and lesion syndromes	-	
1.6. Basics of clinical neuroanatomy and functional organization of the cerebral hemispheres. Higher brain functions and syndromes of lesions	2	
1.7. Brain covers , cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome		
1.8. Blood supply to the brain and spinal cord		-
1.9. Syndromes of the nervous system focal lesions		1
2. SPECIFIC NEUROLOGY	**8**	**5**
2.1. Propaedeutics and semiotics in children and adult nervous system diseases	-	5
2.2. Infectious and inflammatory and autoimmune nervous system disorders	-	
2.3. Vascular diseases of the nervous system	-	
2.4. Peripheral nervous system diseases	2	
2.5. Headache or facial pain	6	
2.6. Epilepsy and convulsive state		
3. NEUROSURGERY	**4**	**5**
3.1. General principles of Neurosurgery	2	-
3.2. Traumatic brain injury		5
3.3. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord	2	
Total hours	**16**	**15**

CONTENT OF EDUCATIONAL MATERIAL

1. GENERAL NEUROLOGY

1.1. Introduction to the discipline. History of the development of neurology and neurosurgery. Structural and functional organization of the nervous system

"Neurology and Neurosurgery" in the clinical discipline system.

Main stages of the nervous system development, phylogenesis and ontogenesis. The structural unit of the nervous system - neuron, its structure and functional importance of its individual parts. Basic anatomical and topographical divisions of the nervous system: the brain hemisphere (gray and white matter), basal ganglia, midbrain, brainstem (brain stem, pons, medulla), cerebellum, spinal cord, roots, intervertebral ganglia plexus and peripheral nerves.

1.2. Instrumental methods in the diagnosis of diseases of the nervous system

X-ray semiotics of diseases of the nervous system. X-rays of the skull and spine. Carotid and vertebral angiography. Digital subtraction angiography selective. Myelography. Ventriculography. X-ray computed tomographic study (CT). CT angiography. CT-ventriculography. Magnetic resonance imaging (MRI). MRI angiography. MR myelography. Single photon emission and positron emission tomography.

Echoencephalography. Neurosonography. Rheoencephalography. Electroencephalography (EEG). Computer methods of EEG analysis, EEG mapping, EEG monitoring. Electromyography. Electroneuromyography. Evoked potentials. Duplex scanning precerebral arteries. Transcranial Doppler.

Lumbar (suboccipital, ventricular) puncture: indications, contraindications, methods of, complications. Study of cerebrospinal fluid. Features of lumbar puncture in infants. CSF parameters in normal and pathological conditions in children and adults. Monitoring of intracranial pressure.

1.3. Sensitivity and its lesion

Sensitivity analyzer structure

Nervous system is a self-control apparatus based on continuously incoming information. Notions of reception, sensation, perception. Sensitivity analyzer structure.

Clinical classification of sensitivity types.

Conductors of surface and deep sensitivity. Lesion syndromes

Conductors of surface and deep sensitivity. Types of sensory disorders. Lesion syndromes of sensitivity in impairments of the peripheral nerves, spinal roots plexus, spinal cord segments, brain stem, cerebral hemispheres.

Sensorium study

Symptoms of tension in diseases and injuries of the nerve trunks. Sensitivity investigation techniques.

1.4. Motor system and its lesion syndromes

Structure of cortico-muscular pathways of voluntary movements. Motor impairment syndromes

Characteristics of the motor channel. Central and peripheral motor neuron. Motor areas – interaction between the system of voluntary movements, extrapyramidal system and coordination. Definition of "reflex". Classification of reflexes. Reflex arc. The notion of the reflex circle, reflex ring. Characteristics and features of deep reflexes. Characteristics and importance of pathological reflexes (foot, carpal, axial). Notion of myostatics and myodynamics. Movement disorders: palsy and paresis, hyperkinesis and akinesia. Symptoms of central palsy. Symptoms of peripheral palsy. Voluntary movement impairments: paresis, palsy, mono-, hemi-, tetra-, paraparesis. Syndromes of motor disorders in impairments of the hemispheres, brain stem, spinal cord, root and plexus and peripheral nerves.

Structure and organization of the extrapyramidal system. Pallidum and striatic syndromes

Morphological and functional organization of the extrapyramidal system. Pallidum and striatic system. Participation of the extrapyramidal system in human movements. Pallidum and striatic syndromes: Parkinsonism and hyperkinetic syndrome. Hyperkinesis variations: chorea, athetosis, torsion dystonia, hemiballismus, tics, myoclonus.

Structure and features of the cerebellum topography. Symptoms of its impairment, ataxia variants

Cerebellum. The functional importance of cerebellum connections with other structures of the nervous system. Symptoms of cerebellar impairment, ataxia symptoms. Types of ataxia: cerebellar (static, dynamic), sensitivity, vestibular, cortical, psychogenic.

Investigation of the motor areas. Diagnosis of motor function impairments

Motor areas investigation techniques. Methods of determining the strength, assessment of muscle tone, causing reflexes.

1.5. Cranial nerves. Examination methods and lesion syndromes

Peculiarities of cranial nerves study.

Peculiarities of the olfactory analyzer structure, its functions. Levels of destruction and variants of olfaction impairment. Examination methods.

Peculiarities of the visual analyzer structure. Changes of visual acuity and fields in impairments of various parts of the visual analyzer. Hemianopia types. The impairment of the cortical part of visual analyzer. Examination methods.

Oculomotor nerves - III, IV and VI pairs; innervation of the eye muscles. Symptoms of oculomotor function impairment. Autonomic innervation of the eye. Reaction of pupils to light, accommodation and vergence. Innervation of the eye. Variants of disorders in various nervous system impairments. Examination methods.

Features of the trigeminal nerve structure. Sensory innervation zone and providing functions of the masticatory muscles. Corneal, superciliary and mandibular reflexes. The most common levels of destruction. Types of sensitivity disorders of the face. Examination methods.

Peculiarities of the facial nerve topography. Innervation of the facial muscles. Structure and function of the intermediate nerve. Features of the facial nerve lesion, depending on the level of injury. Features and differences of central and peripheral paresis of mimic muscles. Examination methods.

Peculiarities of auditory and vestibular nerves. Levels of destruction. Symptoms of irritation and impairments at different levels. Vertigo and nystagmus types. Examination methods.

Glossopharyngeal, vagus, hypoglossal nerves: nerve functions, their course, the nucleus in the brainstem. Examination methods, lesion symptoms. Bulbar and pseudobulbar syndromes.

Accessory nerve. Function, Examination methods, lesion symptoms.

1.6. Basics of clinical neuroanatomy and functional organization of the cerebral hemispheres

Anatomical and physiological features of the cerebral cortex. Structural and functional organization of higher brain functions. The structure of the cortical analyzers. Localization of functions in the cerebral cortex. The concept of the functional asymmetry of the cerebral hemispheres.

Speech as the highest function of the human nervous system. Localization of speech centers. Involvement of different parts of the nervous system in the implementation of speech functions. Impressive and expressive speech. Aphasia: motor, sensory, amnestic, semantic, total. Examination methods of speech functions. Alexia, agraphia, dyscalculia.

Gnostic functions. Agnosia types: visual, auditory, sensitivity (astereognosis, autotopagnosia, anosognosia).

Praxis. Types of apraxia: ideational, constructive and motor. Examination methods.

Structural and functional maintenance of memory, methods of assessment. Amnesia and its variants.

Definition of consciousness and its condition criteria. Scale of quantitative changes of consciousness: a stupor, sopor, coma (moderate, deep and terminal). Glasgow Coma Scale. Psychomotor agitation, delirium, clouded state, dementia, chronic vegetative state.

1.7. Covers of the brain, cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome

Covers of the brain and spinal cord. Subdural, subarachnoid space, dural venous sinuses.

The blood-brain barrier. Circulation and cerebrospinal fluid resorption. Features composition of cerebrospinal fluid is normal in children of different age groups. Characteristics of cerebrospinal fluid in normal and disease: inflammation, tumor diseases, intracranial hemorrhage, and parasitic diseases. Syndromes of cell-protein and protein-cell dissociation. Meningeal syndrome. Syndrome of intracranial hypertension.

1.8. Blood supply to the brain and spinal cord

The magistral arteries of the head and neck. Arterial circle of the brain, its physiological significance. Peculiarities of cerebral vessels structure. Areas of the anterior cerebral, middle cerebral and posterior cerebral arteries blood supply. Blood supply of the cerebellum and brain stem. The main ways of venous outflow. Collateral circulation system of the brain.

Blood supply to the spinal cord. Ways of venous outflow. Peculiarities of the formation of the upper, middle and lower basins of the spinal artery.

1.9. Syndromes of the nervous system focal lesions

The lesion of the frontal lobe. The lesion of the parietal lobe. The lesion of the temporal lobe. The lesion of the occipital lobe.

The lesion of the corpus callosum. The lesion of the internal capsule. The lesion of the hypothalamic-pituitary region. The lesion of the thalamic region. The lesion of the basal ganglia area. The lesion of the cerebellum.

The lesion of tectum of mesencephalon. The lesion of cerebral peduncle. The lesion of pons cerebelli. Bulbar lesions.

The lesion of the upper cervical spinal cord (CI - CIV). The lesion of the lower-cervical spinal cord (CV - CVIII). The lesion of the thoracic spinal cord. The lesion of the lumbar spinal cord. The lesion of epicone of spinal cord. The lesion of the cone of the spinal cord. The impairment of the cauda equina.

2. SPECIFIC NEUROLOGY

2.1. Propaedeutics diseases of the nervous system

A method of clinical diagnosis of diseases of the nervous system.

Complaints. History of the disease. History of life. Examination of higher mental functions. Motor areas. Deep reflexes. Pathological reflexes. Sensitivity. Scheme of segmental innervation of the human body. Forms and types of disorders of sensation. An investigation of the cranial nerves. Coordination. Meningeal symptoms. The autonomic nervous system. Topical diagnosis. Additional methods of research. Differential diagnosis. Clinical diagnosis and its rationale. Treatment. The prognosis for life and recovery.

Methods of clinical diagnosis of diseases of the nervous system in children. Features of newborn screening and early childhood

Family history. Obstetric history. History of the disease. Anamnesis of life. These physical examination. Status of internal organs. The list of anomalies and stigmas. Condition of the nervous system. Motor areas. Reflex scope. Research functions of cranial nerves. The deep and superficial reflexes. Pathological reflexes. Coordination of movements. Sensitivity. Meningeal symptoms. The autonomic nervous system. Mental development. Key indicators of mental development in infants: the 1st year of life; 2nd year of life. Additional methods of research. Topical diagnosis. Syndromic diagnosis. Differential diagnosis. Clinical diagnosis. Treatment. The prognosis for life and recovery.

2.2. Infectious and inflammatory and autoimmune damage to the nervous system

Meningitis

Classification of meningitis: purulent, serous; bacterial, viral, fungal; primary, secondary. The main characteristic of meningeal syndrome. The clinical manifestations of meningitis. Changes in the cerebrospinal fluid.

Purulent meningitis. Meningococcal meningitis, clinical manifestations, forms, features of the course, Diagnosis. Features of clinical manifestations and course of meningococcal meningitis in infants and children during the first years of life. Meningitis caused by Haemophilus influenzae Afanasyev-Pfeiffer, Pseudomonas aeruginosa, Proteus pneumococcal, staphylococcal. Otogenic meningitis.

Serous meningitis (bacterial and viral), enterovirus meningitis, mumps meningitis: clinical manifestations, diagnosis, treatment. TB meningitis: clinical manifestations, diagnosis and treatment. Syphilitic, brucellosis, ornitozny meningitis; lymphocytic choriomeningitis. The complications of meningitis.

Features evaluation of neurological status and curation of patients with meningitis. Differential diagnosis of meningitis is the analysis of cerebrospinal fluid. Modern principles of antimicrobial therapy of meningitis.

Encephalitis

Classification of encephalitis. Primary and post-parainfectious or encephalitis, the main clinical manifestations. Changes in the cerebrospinal fluid.

Herpetic encephalitis: clinical manifestations, diagnosis, treatment. Tick-borne encephalitis: forms of the disease, clinical manifestations, diagnosis, treatment and prevention. Epidemic encephalitis save: clinical manifestations of acute and chronic stages, differential diagnosis, treatment. Features evaluation of neurological status and curation of patients with encephalitis. Poliomyelitis: clinical forms, diagnosis, treatment, prevention. Features evaluation of neurological status and curation of patients with polio.

Parainfectious encephalomyelitis

Measles, chicken pox, rubella, mumps encephalomyelitis. Post-vaccination damage to the nervous system.

Intrauterine infection

Intrauterine (TORCH-infection): rubella, toxoplasmosis, herpes infection, cytomegalovirus infection.

The defeat of the nervous system in influenza, HIV and syphilis: clinical forms, diagnosis, treatment, prevention.

Prion lesions of nervous system

Creutzfeldt-Jakob disease, etc.: the clinical forms, diagnosis, treatment, prevention.

The defeat of the nervous system in parasitic diseases

The defeat of the nervous system toxoplasmosis, cysticercosis, echinococcosis: clinical forms, diagnosis, treatment, prevention. Features evaluation of neurological status and curation of patients with parasitic diseases.

The defeat of the nervous system Lyme-borreliosis

Etiology of Lyme-borreliosis, characteristic clinical forms, damage to the central and peripheral nervous system. Diagnosis, treatment, prevention of Lyme-

borreliosis. Features evaluation of neurological status and curation of patients with Lyme-borreliosis.

Acute flaccid paralysis (AFP)

Poliomyelitis: clinical forms, diagnosis, treatment, prevention. The urgency of the problem of acute flaccid paralysis in addressing the issue of eradication of polio in childhood. Algorithm in identifying AFP cases. Differential diagnosis of diseases characterized by a syndrome of AFP. Features evaluation of neurological status and curation of patients with the syndrome AFP.

Demyelinating disease

Acute disseminated encephalomyelitis: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment. Features evaluation of neurological status and curation of patients with acute disseminated encephalomyelitis.

Multiple Sclerosis: modern concepts of etiology and pathogenesis, the main neurological syndromes, clinical forms, types of flow, the EDSS scale, the diagnostic criteria (McDonald criteria), the information content of instrumental research methods, differential diagnosis. Features evaluation of neurological status and curation of patients with multiple sclerosis. Modern principles of treatment of exacerbations. Technologies that modify the clinical course of the disease. Immunomodulators. Immunosuppressants. Cell technologies.

2.3. Vascular diseases of the nervous system

Incidence, structure, prevalence. Etiology and main pathogenetic mechanisms of cerebral circulation impairments. Correlation between etiologic and pathogenetic factors. Classification.

Risk factors for stroke. Definition, classification, and modifiable and unmodifiable risk factors.

Clinic of transient cerebral blood flow impairments: transient ischemic attacks, acute hypertensive encephalopathy, transient global amnesia, drop attacks.

Minor stroke

Cerebral infarction: atherothrombotic, cardioembolic, hemodynamic. Lacunar infarction by type hemorheological micro-occlusions. Features of cerebral infarction in the defeat of the carotid vascular system (anterior, middle and posterior cerebral arteries). Features of cerebral infarction in the defeat of vessels vertebro-basilar system. Acute ischemic stroke in antiphospholipid syndrome. Features evaluation of neurological status and Curation of patients with cerebral infarction.

Intracerebral hemorrhage. Non-traumatic subarachnoid hemorrhage (hypertension, aneurysm rupture, etc.). Parenchymal hemorrhage. Hemorrhage in the cerebellum. Subarachnoid-parenchymal hemorrhage. Ventricular hemorrhage. Parenchymal-ventricular hemorrhage. Etiology, pathogenesis, clinical manifestations of cerebral hemorrhage depending on the location. Features evaluation of neurological status and Curation of patients with intracerebral hemorrhage.

Special examination methods in stroke: computed tomography, magnetic resonance imaging, angiography. Scheme of examination and diagnosis of patients with acute ischemic disturbance of cerebral circulation.

Features of the clinical management of patients with acute ischemic stroke. Emergency medical care in acute cerebral circulatory disorders. Basic (undifferentiated) and the differentiated treatment of acute cerebral circulatory disorders. Thrombolysis: indications and contraindications.

First aid in acute disturbance of cerebral circulation. Basic (undifferentiated) and differentiated treatment of stroke.

Primary and secondary prevention of acute disturbances of cerebral circulation. Prediction of emergence of stroke.

Chronic disorders of cerebral circulation. Encephalopathy - classification, clinical picture, diagnosis and treatment. Features evaluation of neurological status and Curation of patients with chronic ischemic attack.

Disturbance of the spinal circulation: classification, variants of clinical course, diagnosis, treatment. Features evaluation of neurological status and Curation of patients with impaired spinal circulation.

2.4. Peripheral nervous system diseases

Structure and classification of diseases of the peripheral nervous system

Classification of diseases of the peripheral nervous system. The forms of disturbances of different parts of the peripheral nervous system and modern terminology (radiculopathy, traumatic root injury, ganglionitis, plexopathy, traumatic plexus injury, neuropathy, neuralgia, traumatic nerve injury, polyneuropathy).

Polyneuropathy. Classification. Clinical picture. Treatment

Classification of polyneuropathy (infectious, autoimmune, toxic, dysmetabolic, idiopathic and hereditary). Acute inflammatory demyelinating Guillain-Barre polyradiculoneuropathy. Clinic, diagnosis, treatment. Chronic inflammatory demyelinating polyradiculoneuropathy. Diphtheria polyneuropathy. Clinic and prevention. Diabetic polyneuropathy. Clinic, treatment. Alcoholic polyneuropathy. Clinic, treatment. Polyneuropathy in case of poisoning organophosphate.

Compression-ischemic neuropathy

Compression-ischemic neuropathy of radial, ulnar, median, peroneal, tibial and sciatic nerves: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention.

Vertebral nervous system impairments

The definition of "osteochondrosis". Function of the intervertebral disc. Vertebral motion segment. Development of intervertebral disc hernia: protrusion (eversion), prolapse (falling). Median, paramedian, posterolateral, lateral or foraminal intervertebral disc hernia. Radiographic signs of Degenerative Disc Disease. Neuroimaging findings of Degenerative Disc Disease.

Classification of neurological manifestations of Degenerative Disc Disease (reflex, radicular and radicular-vascular syndromes at the cervical, thoracic and

lumbosacral levels). Clinical stages of Degenerative Disc Disease course. Differential diagnosis of reflex and radicular syndromes of Degenerative Disc Diseas. Neck reflex and radicular syndromes (cervicalgy, cervicocranialgy, cervicobrachialgy, radiculopathy). Reflex syndromes at the lumbosacral level (lumbago, lumbodynia, lumbar ischialgy). Reflector and reflected vertebro-visceral and viscero-vertebral pain syndrome. Lumbosacral radiculopathy. Vertebral and discogenic radiculomyeloischemia. The differential diagnosis of vertebral lesions of the nervous system. Views on myofascial pain syndrome and fibromyalgia. Methods and possibilities of instrumental diagnostics. The formulation of the diagnosis.

Comprehensive therapy of neurological manifestations of Degenerative Disc Disease. Treatment. Therapeutic blockade: indications. Methods of physiotherapy, manual therapy, massage, physical therapy, acupuncture. Surgical treatment of neurological manifestations of Degenerative Disc Disease. Indications for surgical treatment of discogenic lumbosacral radiculopathy.

Examination of temporary disability. Prevention of Degenerative Disc Disease and its neurological manifestations.

2.5. Headache and facial pain

Topicality of the problem. Clinical neuroanatomy of the face. Lesion syndromes. Neurovascular topography of the area of the cerebellopontine angle and the surrounding area. Innervation of the skin. Features evaluation of neurological status and Curation of patients with head and facial pain.

The current international classification of headache and facial pain (2003). Primary headaches. Migraine. Etiology, pathogenesis, classification, clinical picture, diagnosis, differential diagnosis, treatment and prevention. Tension headache. Etiology, pathogenesis, classification, clinical picture, diagnosis, differential diagnosis, treatment and prevention. Beam (cluster) headache and other trigeminal autonomic (self-contained) headaches. Etiology, pathogenesis, classification, clinical picture, diagnosis, differential diagnosis, treatment and prevention. Secondary headaches. Headache and facial pain associated with the disorders of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures. Headache and facial pain associated with the disorder of the temporomandibular joint. Etiopathogenesis, clinical features, diagnosis, differential diagnosis, principles of treatment and prevention. Cranial neuralgias and main causes of headache. Trigeminal neuralgia. Classic trigeminal neuralgia. Symptomatic trigeminal neuralgia. Current views on the etiopathogenesis. Clinical picture, diagnostic criteria. Differential diagnosis. Principles of conservative treatment. Surgical methods: microvascular decompression of the trigeminal nerve root, percutaneous radiofrequency destruction, stereotactic radiosurgery (gamma knife). Facial psychalgias. Stomalgiya, glossalgia, glossodiniya. Etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, principles of treatment and prevention.

2.6. Epilepsy and convulsive conditions

Definition of epilepsy. The etiology of epilepsy. The incidence and prevalence of epilepsy. Hereditary factor. Mechanisms of epileptogenesis of epilepsy.

Classification of epileptic seizures: international classification (Kyoto, 1981), an international classification of epilepsy (New Delhi, 1989). Semiology of seizures. Febrile convulsions in children.

Epileptic seizures: paroxysmal conditions specific class; a problem of differential diagnosis of epileptic seizures, syncope, hysterical attacks. Factors and conditions that provoke the development of epileptic seizures.

Electroencephalography (EEG) in the diagnosis of epilepsy (EEG-mapping, EEG-video monitoring), the plan evaluation of patients with epileptic seizures nature. Primary health care in generalized seizures. Medical drug treatment of epilepsy.

Status epilepticus, definition, causes, treatment.

Epileptic encephalopathy in children.

Non-epileptic paroxysmal states in children. Differential diagnosis of epilepsy and related conditions in children (syncope, psychogenic condition, disorder, sleep-related, non-epileptic myoclonus, migraine and related conditions, extrapyramidal disorders). Features evaluation of neurological status and Curation of patients with epilepsy.

Epilepsy and pregnancy. Lifestyle and disabled patients with epilepsy.

3. NEUROSURGERY

3.1. General principles of Neurosurgery

Basic principles of neurosurgical operations. Cranio-cerebral topography. Lumbar, suboccipital and ventricular puncture. The concept of trephination and craniotomy (resection and osteoplastic). Methods of stopping bleeding.

The general concept of the microsurgery, stereotactic, endoscopic and endovascular technologies in neurosurgery. Laminectomy technique. The main access to the peripheral nerves. Technique neurolysis and nerve suture.

3.2. Traumatic brain injury

Clinical epidemiology of traumatic brain injury classification. Pathological anatomy and pathogenesis of traumatic brain injury: the idea of primary and secondary, diffuse and focal lesions. Traumatic brain disease.

Clinical manifestations and diagnosis of concussion and brain contusion. Features of clinical manifestations of diffuse axonal brain damage. Clinical manifestations and diagnosis of the basic forms of cord compression: epidural, subdural and intracerebral hematomas, depressed fracture of the skull bones. Compression of the head. Features of traumatic brain injury in children, the elderly and trauma on the background of alcoholic intoxication. Complications of traumatic brain injury. The formulation of the diagnosis.

Plan of inspection of patients with brain injuries. Conservative treatment of patients with brain injuries. Principles of surgical treatment. The optimal timing of

treatment and temporary disability with the most common forms of traumatic brain injury. The rehabilitation of patients with brain injuries. Organization neyrotravmatology assistance.

Cranio-facial traumatic injuries. Classification, clinical manifestations, diagnosis, principles of neurosurgical treatment.

3.3. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord

Classification: primary and secondary tumor lesions. Clinical manifestations and features of tumor lesions of the nervous system. Main neurological syndromes in tumor lesions of the brain: cerebral, focal. Syndrome of intracranial hypertension in children.

Clinical manifestations and diagnosis of tumors and hemispheric localization subtentorial. Clinical manifestations and diagnosis of tumors chiasmosellar area. brain tumors in children. Features metastatic brain lesions. Methods of diagnosis of brain tumors, the plan of patient examination. The principles, features and surgical outcomes. Radiation therapy, chemotherapy, symptomatic treatment of brain tumors.

Classification, the main neurological syndromes in neoplastic lesions of the spinal cord and meninges (transverse spinal cord lesions syndrome, radicular syndrome, envelope, cross-violation of the spinal subarachnoid area).

Clinical manifestations and diagnosis of extramedullar and intramedullar tumors, tumors of the cauda equina. Features of clinical manifestations and diagnosis of metastatic lesions of the spinal cord and its membranes. Methods of instrumental diagnostics and patient examination plan, surgical treatment principles.

EDUCATIONAL AND METHODICAL CARD FOR DISCIPLINE "NEUROLOGY AND NEUROSURGERY"

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
1	**1. GENERAL NEUROLOGY**	4	5		
1.1	1.1. Introduction to the discipline. History of the development of neurology and neurosurgery. Structural and functional organization of the nervous system	2	5	7	interview tests; control questions; essays; curation of patients; publishing articles
1.2	1.2. Instrumental methods in the diagnosis of diseases of the nervous system				
1.3	1.3. Sensitivity and its lesion				
1.4	1.4. Motor system and its lesion syndromes				
1.5	1.5. Cranial nerves. Examination methods and lesion syndromes	-			
1.6	1.6. Basics of clinical neuroanatomy and functional organization of the cerebral hemispheres	2			
1.7	1.7. Covers of the brain, cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome				
1.8	1.8. Blood supply to the brain and spinal cord				
1.9	1.9. Syndromes of the nervous system focal lesions				
2	**2. SPECIFIC NEUROLOGY**	8	5		
2.1	2.1. Propaedeutics diseases of the nervous system	-	5	7	interview electronic tests; control questions; essays;
2.2	2.2. Infectious and inflammatory and autoimmune damage to the nervous system	-			
2.3	2.3. Vascular diseases of the nervous system	-			

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
2.4	2.4. Peripheral nervous system diseases	2			curation of patients
2.5	2.5. Headache and facial pain	6			
2.6	2.6. Epilepsy and convulsive conditions	-			
3	**3. NEUROSURGERY**	**4**	**5**		
3.1	3.1. General principles of Neurosurgery	2		1	interview.
3.2	3.2. Traumatic brain injury				
3.3	3.3. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord	2	5	2	interview tests; control questions; essays; curation of patients offset
	Total hours	**16**	**15**	**17**	

INFORMATION-METHODICAL PART

REFERENCES

Main:

1. *Федулов, А.С., Нургужаев, Е.С.* Неврология и нейрохирургия. Т.1. Минск: «Новое знание», 2015. 304 с.
2. *Гусев, Е.И.* Неврология и нейрохирургия. Т.1 / Е.И.Гусев, А.Н.Коновалов, В.И. Скворцова. Москва: Издательская группа «ГЭОТАР-Медиа», 2007. 612с.
3. *Гусев, Е.И.* Неврология и нейрохирургия Т.2 / Е.И.Гусев, А.Н.Коновалов, В.И.Скворцова. Москва: Издательская группа «ГЭОТАР-Медиа», 2009. 419с.
4. *Герасимова, М.М.* Нервные болезни / М.М.Герасимова. Тверь-Москва, 2003. 512с.

Additional:

5. *Болезни* нервной системы: руководство для врачей. Т. 1 /под редакцией Н.Н.Яхно, Д.Р.Штульмана. М.: Медицина, 2001. 744с.
6. *Болезни* нервной системы: руководство для врачей. Т. 2 /под редакцией Н.Н.Яхно, Д.Р.Штульмана. М.: Медицина, 2001. 480с.

LIST OF DIAGNOSTIC MEANS

Student academic achievements assessment is carried out with the help of diagnostic means and technologies of the university:

1. Oral form:
- interview;
- curation of patients.

2. Written form:
- tests;
- quizzes;
- control works;
- essays;
- standardized tests;
- assessment based on module-rating system;

3. Oral-written form:
- tests;
- examinations;

4. Technical Form:
- electronic tests.

LIST OF LECTURES

VIIIth SEMESTER

8 lectures – 16 hours

1. Introduction to neurology. Motor system. Examination methods. Lesion syndromes. Anatomical and physiological aspects. Sensitivity. Lesion syndromes.

2. Higher brain functions. Cerebrovascular disease. Clinic and diagnostics. Differential diagnosis of stroke. Intensive therapy and basic strokes. prevention methods.

3. Neurological manifestations of osteochondrosis. Classification, clinical. Differential diagnosis of neurological manifestations of osteochondrosis, principles of treatment and prevention.

4. Clinical Neuroanatomy of the face. Examination methods. Lesion syndromes.

5. The International Classification of Headache Disorders . Primary headaches. Migraine. Tension-type headache. Cluster headache and others. Trigeminal autonomic cephalgia. Secondary headaches. The clinic, diagnosis, differential diagnosis, principles of treatment and prevention.

6. Cranial neuralgias and central causes of facial pain. Facial psychogenic pain. Stomalgiya, glossalgia, glossodiniya. The clinic, diagnosis, differential diagnosis, principles of treatment and prevention.

7. Modern methods of examination and neyrostomatologyl patients. Traumatic brain injury. Combined injuries of maxillofacial region. Principles of neurosurgical treatment

8. Brain tumors. Classification, clinical and diagnosis. Principles of neurosurgical treatment.

LIST OF PRACTICAL CLASSES

VIIth SEMESTER

3 practical – 15 hours

1. Methods of examination of neurological patients.

2. Disorders of cerebral circulation, clinic, diagnostics, treatment and prevention foundations. Epilepsy. Peripheral nervous system diseases.

3. Modern methods of examination neurosurgery and neyrostomatology patients. Traumatic brain injury. Combined injuries of maxillofacial region. Principles of neurosurgical treatment.

PROTOCOL AGREEMENT TRAINING PROGRAMME

Name of related disciplines	The department, carrying out the teaching of related subjects	The content of the proposed changes in the work program	Action taken by the department of developer (date, report number)
1. Human Anatomy	Department of Normal Anatomy	No proposal to change	Protocol № 20 12.05.2016
2. Surgical Diseases	Department of Surgical Diseases	No proposal to change	Protocol № 20 12.05.2016

[1]The content of the curriculum SVR must be coordinated with the departments that provide teaching of the discipline, for the assimilation of which is necessary to study this discipline.
[2]If you have suggestions about the changes in the content of the training program SVR.

COMPILERS:

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Assistant professor of the Department of Nervous and Neurosurgical Diseases "Belarusian State Medical University", Candidate of Medical Sciences, Docent — V.G.Loginov

Curriculum content, composition and accompanying documents comply with established requirements.

Dean of the Medical Faculty of International Students — V.V.Davydov
31.08 2016

Methodologist of Educational Institution "Belarusian State medical University" — S.A.Kharytonava
31.08 2016

Head of the Foreign Languages Department — M.N.Petrova

Information about the authors (compiled) curriculum

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