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

APPROVED
by First Vice-Rector, Professor
_____S.V. Gubkin
_____ 30.08.2016
Reg. # УД-№ 576пд/1617/уч.

NEUROLOGY AND NEUROSURGERY

Curriculum of higher educational institution
In the educational discipline for the specialty:

1-79 01 01 «General Medicine»

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.

The purpose of the teaching and learning of educational discipline "Neurology and Neurosurgery" is the formation of the students, and the acquisition of scientific knowledge on the etiology, pathogenesis, diagnosis, treatment and prevention of the most widespread and socially significant nerve and neurosurgical diseases, acquiring skills and survey the skills and the provision of medical care of patients with these diseases.

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 drugs 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.

Propaedeutics of Internal Medicine. Methods of physical examination of the patient's status.

Infectious diseases. Survey methodology, clinical picture, treatment and prevention of the most common infectious and infectious-allergic diseases of the nervous system in children and adults. The prevalence in the population of infectious lesions of the nervous system.

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

Anesthesiology and Intensive Care. Principles of basal and differentiated intensive care for acute neurological and neurosurgical conditions. Anesthetic management of surgical interventions on the central and peripheral nervous system.

Otorhinolaryngology. Principles for evaluation of the functional status of upper respiratory tract and the vestibular apparatus.

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;
- The basis of clinical examination and rehabilitation of patients, principles of medical and social assessment;

be able to:

- conduct a neurological examination of the patient;
- differential diagnosis of nervous diseases and neurosurgery, to take into account the necessary consultation of medical specialists in determining the final clinical diagnosis;

- define indications for additional methods of diagnosis and carry out the clinical interpretation of the data;

- conduct a medical examination and to issue a sheet of disability;

- to provide emergency medical care for syncope, shock, coma, acute cerebral circulatory disorders, seizures, head injury;

- perform primary surgical treatment of wounds in traumatic brain injury, to assist in the performance of the most common emergency neurosurgical operations;

- carry out preventive examinations of the population and the medical check-up;

possess:

- the interpretation of the results of radiation research in neurology and neurosurgery;

- interpretation of the results of additional research methods in neurology and neurosurgery.

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 198 academic hours. Distribution of contact hours by type of training: 28 hours of lectures, 80 hours of practical training; 90 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 (7^{th} semester) and exam.

Form of education - full-time day.

BUDGET ALLOCATION OF TEACHING TIME PER SEMESTER

Code name specialties	Semester	Количество часов учебных занятий					forms of current certification
		total	classroom	из них		separate non- classroom	
				lectures	practical training		
1-79 01 01 «General Medicine»	7	**78**	52	12	40	**26**	credit
	8	**120**	56	16	40	**64**	exam

THEMATIC PLAN OF IN-CLASS STUDIES

Theme	Quantity of class hours	
	lectures	practical classes
1. GENERAL NEUROLOGY	**4**	**31**
1.1. Introduction to the discipline. History of the development of neurology and neurosurgery. Structural and functional organization of the nervous system	2	1
1.2. Instrumental methods in the diagnosis of the nervous system diseases	-	
1.3. Sensitivity and its impairment	-	6
1.4. Motor system and its lesion syndromes	-	5
1.5. Cranial nerves. Examination methods and lesion syndromes	-	6
1.6. The vegetative (autonomic) nervous system syndromes and its defeat	-	1
1.7. Basics of clinical neuroanatomy and functional organization of the cerebral hemispheres. Higher brain functions and syndromes of lesions	2	4
1.8. Brain covers , cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome	-	3

Theme	Quantity of class hours	
	lectures	practical classes
1.9. Blood supply to the brain and spinal cord	-	2
1.10. Syndromes of the nervous system focal lesions	-	3
2. SPECIFIC NEUROLOGY	**18**	**29**
2.1. Propaedeutics and semiotics in children and adult nervous system diseases	-	5
2.2. Infectious and inflammatory and autoimmune nervous system disorders	4	10
2.3. Vascular diseases of the nervous system	2	3
2.4. Diseases of the autonomic nervous system	-	1
2.5. Peripheral nervous system diseases	2	5
2.6. Headache or facial pain	2	-
2.7. Hereditary and degenerative diseases of the nervous and neuromuscular systems	6	5
2.8. Epilepsy and convulsive state	2	-
3. NEUROSURGERY	**6**	**20**
3.1. General principles of Neurosurgery	-	2
3.2. Traumatic brain injury	2	4
3.3. Spinal cord injury	-	1
3.4. Neurosurgical treatment of disorders of the peripheral nervous system	-	3
3.5. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord	2	5
3.6. Neurosurgical treatment of vascular diseases of the nervous system	2	5
Total hours	**28**	**80**

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.

Anatomical and physiological features of the nervous system in children in different periods of formation and development of the nervous system, their role in the occurrence and progression of diseases of the central and peripheral nervous system in children.

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. Properties sensitivity studies in children.

1.4. Motor system and its lesion syndromes

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

Characteristics of the motor way. Central and peripheral motor neurons. Motor areas - interaction of the system of voluntary movements, and extrapyramidal motor coordination system. The definition of "reflex". Classification of reflexes. The reflex arc. The concept of reflex circle reflex ring. Phasic and tonic response. Gamma-loop. Physiological neonatal reflexes. Features reflex reactions in children of different age groups. Characteristics and features of superficial reflexes. The concept of tonic reflexes, their role in the motor development of the child. Characteristics and significance of pathological reflexes (jog, fist, axial). Reflexes infancy period. The development of motor function of the child in the first year of life. The role of primary and secondary automatisms in the development of motor skills of man. The appearance of the child's voluntary movements. Disorders motions: paralysis and paresis. Symptoms of central paralysis. Symptoms of peripheral paralysis. Disorders of voluntary movements: paresis, mono-, hemi, tetra, paraparesis. Syndromes of motor disorders in lesions of the cerebral hemispheres, brain stem, spinal cord, root and plexus, 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. The vegetative (autonomic) nervous system syndromes and its defeat Clinical Neuroanatomy of the autonomic nervous system.

Structure and functional organization of the limbic-reticular complex and segmental apparatus of the autonomic nervous system. The sympathetic and parasympathetic divisions of the autonomic nervous system.

Exam Methods vegetative sphere (tone, reactivity, vegetative maintenance of activity). Syndromes of autonomic disorders at damage various parts of the autonomic nervous system. Regulation functions of the pelvic organs, the options disorders.

1.7. 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.

1.8. 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. Properties meningeal symptom in children. Syndrome of intracranial hypertension, characteristics manifestations in children.

1.9. 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.

1.10. 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.

The lesion of the brachial plexus. The lesion of the median nerve. The lesion of the ulnar nerve. The lesion of the radial nerve. The lesion of the lumbar plexus. The lesion of the femoral nerve. The lesion of the sciatic nerve. The lesion of the tibial nerve. The lesion of the peroneal nerve.

2. SPECIFIC NEUROLOGY

2.1. Propaedeutics diseases of the nervous system adult

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

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.

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, ornitosis 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. Diseases of the autonomic nervous system

Autonomic dysfunction syndrome. Simpatotonic and vagotonic symptoms.

Variants syndrome vegetative dystonia. Diagnosis and treatment of diseases of the autonomic nervous system. Properties evaluation of neurological status and curation of patients with a syndrome of a vegetative dystonia.

2.5. 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.

2.6. Headache and facial pain

Relevance 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.

2.7. Hereditary and degenerative diseases of the nervous and neuromuscular systems

Introduction to clinical genetics. Modern principles of classification and hereditary degenerative neuromuscular disease. The concept of clinical polymorphism. Genealogical analysis. Screening for hereditary diseases. Medical and genetic counseling. Nanobiotechnology methods of diagnosis of hereditary diseases. DNA Sequencing. DNA diagnosis: direct and indirect. Medical care for patients with a rare genetic disease. Prevention of genetic diseases in the Republic of Belarus.

Neuromuscular diseases

Classification of neuromuscular diseases. Progressive muscular dystrophy. Distrofinopaties (DMD and Becker): inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Emery-Dreifuss muscular dystrophy: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Myodystrophy Landuzi-Dejerine: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Myodystrophy Davidenkov: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Limb-girdle Erb's atrophy: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Distal myodystrophy late debut (Welander type): inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Congenital muscular dystrophy. Social adaptation of patients with muscular dystrophy. Common approaches to the treatment of muscular dystrophy. Spinal amyotrophy. Proximal spinal amyotrophy in childhood: type I, or acute malignant infantile spinal amyotrophy Verdnig-Hoffmann; Type II, or chronic infantile spinal amyotrophy (intermediate type); type III, or juvenile spinal amyotrophy Kugelberg-Welander. Types of inheritance, clinical manifestations, diagnostic criteria, differential diagnosis. Children progressive bulbar palsy (Fazio-Londe syndrome): inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Adult Spinal amyotrophy: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Myasthenia amyotrophy Stephanie Kennedy-Chukagoshi: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis. Treatment of spinal amyotrophy.

Congenital structural myopathies. Features evaluation of neurological status and Curation of patients with hereditary and degenerative diseases of the nervous and neuromuscular systems.

Hereditary polyneuropathy: motor and sensory neuropathy (HMSN), and sensory or sensory-autonomic neuropathies (NSVN)

Modern classification of hereditary polyneuropathy. Hereditary motor and sensory neuropathy: type 1 - variant demyelinating disease Charcot-Marie-Tooth disease; Type 2 - axonal disease Charcot-Marie-Tooth disease; 3 type - disease Dejerine-Sottas; 4 type - Refsum disease; 5 type 6 type 7 type. Types of inheritance, clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches to HMSN. 5 types of hereditary sensory autonomic neuropathies. Types of inheritance, clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches to NSVN. Features evaluation of neurological status and Curation of patients with hereditary polyneuropathies.

Myotonia

Myotonia Thomson and Becker. Myotonic dystrophy. Clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches to myotonia. Features evaluation of neurological status and Curation of patients with myotonia.

Degenerative diseases mainly affecting the pyramidal system and the cerebellum

Hereditary spastic paraplegia (Adolph Strümpell disease) isolated hereditary spastic paraplegia and paraplegiya-"plus". Types of inheritance, clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches. Features evaluation of neurological status and Curation of patients with hereditary spastic paraplegia.

Spinocerebellar ataxia. Friedreich's ataxia disease: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches. Sporadic forms of spinocerebellar degeneration (atrophy olivopontotserebellyarnaya Dejerine-Thomas, late cortical cerebellar atrophy Marie Foy Alajouanine): clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches. Features evaluation of neurological status and Curation of patients with the disease Friedreich's ataxia.

Diseases mainly affecting the extrapyramidal system

Parkinson's disease: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment. Features evaluation of neurological status and curation of patients with Parkinson's disease.

Chorea Huntington: inheritance types, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment. Features evaluation of neurological status and Curation of patients with Huntington's disease.

Hepatolenticular degeneration (Westphal-Wilson disease): Inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis, treatment approaches. Features evaluation of neurological status and curation of patients with hepatolenticular degeneration.

Degenerative diseases with cognitive disorders

Definition of cognitive impairment. Classification of dementias. Alzheimer's disease: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, current treatment and prevention guidelines. Prospects of solving the problem. Features evaluation of neurological status and Curation of patients with degenerative diseases with cognitive disorders.

Motor Neurone Disease (MND)

Definition, classification of MND. F.Norris: amyotrophic lateral sclerosis (ALS), progressive bulbar palsy, progressive muscular atrophy, primary lateral sclerosis. ALS: terminology, modern ideas about etiopathogenesis, basic neurological syndromes, clinical forms, types of flow. Survey ALS. El Eskorialskie criteria (1998 edition.) To set the diagnosis of ALS. Differential diagnosis. Pathogenic and palliative therapy for ALS. Prospects of solving the problem. Features evaluation of neurological status and Curation of patients with MND.

Neurocutaneous syndromes

Definition, classification neurocutaneous syndromes. Neurofibromatosis: I of type (Recklinghausen's disease), type II of (bilateral auditory neuroma): clinical manifestations, the main diagnostic criteria, differential diagnosis, treatment. Tuberous sclerosis (Bourneville-Pringle's disease): clinical manifestations, the main diagnostic criteria, differential diagnosis, treatment. Von Hippel Lindau disease: clinical manifestations, the main diagnostic criteria, differential diagnosis, treatment. Sturge-Weber disease: clinical manifestations, the main diagnostic criteria, differential diagnosis, treatment. Ataxia telangiectasia (Louis-Bar syndrome): clinical manifestations, the main diagnostic criteria, differential diagnosis, treatment. Features evaluation of neurological status and Curation of patients with neurocutaneous syndromes.

Myasthenia gravis: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment. Features evaluation of neurological status and Curation of patients with myasthenia gravis.

Periodic paralysis

Gamstorp disease, hypokalemic paralysis, paralysis normokaliemic: inheritance types, clinical manifestations, diagnostic criteria, differential diagnosis, treatment. Features evaluation of neurological status and curation of patients with periodic paralysis.

Syringomyelia: etiology and pathogenesis, classification, clinical forms, diagnosis, differential diagnosis, conservative and surgical methods of treatment. Features evaluation of neurological status and curation of patients with syringomyelia.

2.8. 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.

Features evaluation of neurological status and curation of patients with epilepsy.

Epilepsy and pregnancy. Lifestyle and disabled 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. Spinal cord injury

Prevalence and mechanisms, classification, pathogenesis of spinal cord injury. Diagnosis of the level and degree of spinal cord injury (concussion, contusion, spinal cord compression). The concept of spinal shock.

Features of the provision of emergency medical care and transportation. affected the survey plan. Principles of conservative and surgical treatment. Correction of the functions of the pelvic organs and trophic disorders. Features evaluation of neurological status and curation of patients with spinal cord injury. Rehabilitation of victims with spinal injuries.

3.4. Neurosurgical treatment of disorders of the peripheral nervous system

Modern possibilities of surgical treatment of trigeminal neuralgia: microvascular decompression of the trigeminal nerve root, percutaneous radiofrequency destruction, stereotactic radiosurgery (Gamma Knife).

Traumatic injury of the brachial plexus: mechanisms, clinical manifestations, diagnosis, treatment. Mechanisms of traumatic lesions of peripheral nerves, functional and morphological variants of damages, the main neurological syndromes. The terminology and formulation of the diagnosis. Methods of instrumental diagnostics, electroneuromyography. Conservative and surgical treatment of traumatic lesions of peripheral nerves. Rehabilitation of patients with lesions of the peripheral nerves. The outcomes of traumatic lesions of peripheral nerves, examination of temporary disability.

Surgical treatment of neurological manifestations of osteochondrosis: options for surgical interventions, outcomes, rehabilitation of patients after surgery, examination of temporary disability.

3.5. 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.

3.6. Neurosurgical treatment of vascular diseases of the nervous system

Arterial cerebral aneurysms: structure and localization. Pathogenesis and clinical manifestations prehemorragic and hemorrhagic periods. Instrumental methods of diagnosis. Management of patients with spontaneous subarachnoid hemorrhage. The clinical manifestations, principles of surgical and conservative treatment of post-hemorrhagic constrictive angiopathy (arterial spasm). Arteriovenous aneurysm (malformations): pathophysiological entity, clinical presentation and diagnosis. Carotid-cavernous fistulas: etiology, main clinical manifestations, diagnosis, surgical treatment principles. Occlusive processes of major cerebral vessels: indications and surgical techniques.

Surgical treatment of intracerebral hemorrhage. Indications and contraindications for the implementation of the open neurosurgical intervention and endoscopic surgery.

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		
	7 semester	**12**	**40**	26	
	1.1. Introduction to the discipline. History of the development of neurology and neurosurgery. Structural and functional organization of the nervous system	2	6	3	interview presentations at conferences tests; control questions; essays; curation of patients;
	1.2. Instrumental methods in the diagnosis of diseases of the nervous system	-			
	1.4. Motor system and its lesion syndromes	-			presentations at conferences tests; control questions; essays; curation of patients
	1.3. Sensitivity and its lesion	-	6	2	
	1.5. Cranial nerves. Examination methods and lesion syndromes	-	6	2	presentations at conferences tests; control questions; essays; curation of patients
	1.6.The vegetative (autonomic) nervous system syndromes and its lesion	-	6	3	
	1.7. Basics of clinical neuroanatomy and functional organization of the cerebral hemispheres	2			
	2.4. Diseases of the autonomic nervous system	-			

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
	1.8. Covers of the brain, cerebrospinal fluid, meningeal syndrome, intracranial hypertension syndrome	-	6	3	presentations at conferences tests; control questions; essays; curation of patients
	1.10. Syndromes of the nervous system focal lesions	-			
	2.3. Vascular diseases of the nervous system	2	-	2	interview tests; control questions; essays; curation of patients
	2.2. Infectious and inflammatory and autoimmune damage to the nervous system	2	-	3	interview tests; control questions; essays; curation of patients
	3.1. General principles of Neurosurgery	-	5	3	interview tests; control questions; essays; curation of patients
	3.4. Neurosurgical treatment of disorders of the peripheral nervous system	-			
	3.2. Traumatic brain injury				interview presentations at conferences tests; control questions;

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
					essays; curation of patients;
	3.3. Spinal cord injury	2	5	3	interview electronic tests; control questions; essays; curation of patients
	3.5. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord	2	-	2	presentations at conferences tests; control questions; essays; curation of patients
	8 semester	16	40	64	
	2.1. Propaedeutics and semiotics of diseases of the nervous system in adults	-	5	7	presentations at conferences tests; control questions; essays; curation of patients
	1.9. The blood supply of the brain and spinal cord	-	5	7	presentations at conferences tests; control questions; essays; curation of patients

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
	2.3. Vascular diseases of the nervous system	-			presentations at conferences tests; control questions; essays; curation of patients
	2.2. Infectious and inflammatory and autoimmune damage to the nervous system	2	10	7	presentations at conferences tests; control questions; essays; curation of patients
	2.9. Epilepsy and convulsive conditions	2	-	7	presentations at conferences tests; control questions; essays; curation of patients
	2.7. Hereditary and degenerative diseases of the nervous and neuromuscular systems	6	5	7	presentations at conferences tests; control questions; essays; curation of patients
	2.6. Head and facial pain	2	-	7	interview tests; control questions; essays;

Section number, topics	Section title, theme	Quantity of class hours		Individual work student	The forms of knowledge control
		lectures	practical		
					curation of patients offset
	2.5. Peripheral Nervous System Diseases	2	5	7	presentations at conferences tests; control questions; essays; curation of patients
	3.6. Neurosurgical treatment of vascular diseases of the nervous system	2	5	7	presentations at conferences tests; control questions; essays; curation of patients
	3.5. Basics neurooncology. Principles of diagnostics and neurosurgical treatment of patients with tumors of the brain and spinal cord	-	5	8	presentations at conferences tests; control questions; essays; curation of patients

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.

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.

7. *Латышева, В.Я.* Неврология и нейрохирургия: учебное пособие / В.Я.Латышева, Б.В.Дривотинов, М.В.Олизарович. Минск, 2013. 511 с.

Additional:

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

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

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;
- presentations at conferences
- curation of patients.

2. Written form:
- tests;
- control works;
- control questions
- essays;
- the publication of articles, reports;
- standardized tests;

- assessment based on module-rating system;
3. Oral-written form:
- credits;
- examinations;
4. Technical Form:
- electronic tests.

LIST OF LECTURES

VIIth semester

1. Introduction in neurology. History of Neuroscience. Motor and sensory systems. Anatomical and physiological aspects. Research Methods and syndromes of defeat.

2. The higher nervous activity. Dynamic localization of functions in the cortex. Syndromes of lesions of the cerebral hemispheres.

3. Disorders of the cerebral circulation.

4. Infectious and inflammatory lesions of the nervous system.

5. Traumatic brain and spinal cord injury.

6. Tumors of the brain and spinal cord.

VIIIth semester

1. Demyelinating diseases of the nervous system.

2. Epilepsy and convulsive conditions.

3. Hereditary degenerative diseases of the nervous system.

Part I: Introduction to clinical genetics. Neuromuscular diseases.

4. hereditary degenerative diseases of the nervous system.

Part II: Degenerative diseases mainly affecting the pyramidal system and the cerebellum. Diseases mainly affecting the extrapyramidal system.

5. Hereditary degenerative diseases of the nervous system.

Part III: Dementia. Alzheimer's disease. Motor Neurone Disease. Amyotrophic lateral sclerosis. Myasthenia gravis. Syringomyelia. Phakomatoses.

6. Headaches and facial pain.

7. Neurological manifestations of osteochondrosis.

8. Neurosurgical treatment of cerebrovascular diseases.

LIST OF LABORATORY (PRACTICAL) CLASSES

VIIth semester

1. The spinal cord. Anatomical and physiological aspects. The propulsion system. Research methods. Syndromes of lesions.

2. The spinal cord. Anatomical and physiological aspects. Sensitive system. Research methods. Syndromes of lesions.

3. Cranial nerves (I -VI pair). Anatomical and physiological aspects. Exam methods. Syndromes of lesions. Cranial nerves (VII - XII pair). Anatomical and physiological aspects. Research methods. Syndromes of lesions. Bulbar and pseudobulbar palsy.

4. The cerebellum and extrapyramidal system. The autonomic nervous system. Anatomical and physiological aspects. Research methods. Syndromes of lesions.

5. Liquor. Meningeal syndrome. Lumbar puncture. Syndromes of lesions of the brain and spinal cord. Methods of study of neurological status. Formulation of topical diagnosis.

6. General Principles of Neurosurgery. Neurosurgical treatment of disorders of the peripheral nervous system.

7. Brain and spinal cord injury.

VIIIth semester

1. Methods of examination of neurological patients. Formulation of topical and clinical diagnoses. Analysis of the scheme of writing histories of neurological patients. Curation of patients.

2.Narusheniya cerebral circulation. Cerebral infarction. Intracerebral hemorrhage. Chronic cerebrovascular insufficiency. Differential diagnosis. Supervision and analysis of patients. Differential diagnosis. Supervision and analysis of patients.

3. Infectious diseases of the nervous system. Meningitis, arachnoiditis, encephalitis, polio myelitis. Slow neuroinfections. Supervision and analysis of patients.

4. Infectious-allergic and demyelinating diseases of the nervous system. Acute disseminated encephalomyelitis. Multiple sclerosis. Amyotrophic lateral sclerosis. Supervision and analysis of patients.

5. Diseases of peripheral nervous system. Neuritis and neuralgia, sympathalgia. Neurologic manifestations of osteochondrosis. Supervision and analysis of patients.

6. Hereditary degenerative diseases of the nervous system. Neuromuscular diseases. Degenerative diseases mainly affecting the pyramidal system, extrapyramidal system and cerebellum. Supervision and analysis of patients.

7. Vascular diseases of the central nervous system.

8. The tumors of the brain and spinal cord.

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 № 2	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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