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| Name of discipline | Neurology | | | |
| Type | Compulsory | | Credits | 5 |
| Academic year | IV | | Semester | VII-VIII |
| Number of hours | Course | 30 | Practice/laboratory work | 30 |
| Seminar | 30 | Self-training | 60 |
| Component | Specialized | | | |
| Course holder | MD, PhD, professor, Mihail Gavriliuc | | | |
| Location | *Diomid Gherman* Institute of Neurology and Neurosurgery,  2 Vl. Korolenko str., Chisinau  Institute of Emergency Medicine, 1 Toma Ciorba str., Chisinau | | | |
| Conditionings and prerequisites of: | Knowledge in related disciplines such as: anatomy, pathophysiology, pharmacology, psychology, ethics, internal medicine, oncology, surgery. | | | |
| Competences: basic digital skills (internet use, document processing, use of text editors, electronic tables, and presentation applications), communication skills and teamwork. | | | |
| Mission of the discipline | The basic objective of the course is to study the physiological and pathological changes of the nervous system depending on the link between the neuronal substrate and the causal factor, multilateral examination of relevant relationships between the structure and internal organization of the nervous system and the legitimacy of syndrome and topical diagnosis.  Studying the discipline will ensure:   1. acquiring the practical dexterities of examining the neurological patient in order to recognize the pathological signs, with their semiotic evaluation in order to locate and identify the character of the pathological process; 2. adequate evaluation of the information obtained in the additional investigations: electrophysiological, radiological, biochemical, immunological; 3. establishing the clinical diagnosis of neurological diseases frequently encountered in medical practice, which offers the possibility of establishing an adequate treatment and applying effective prophylactic measures; 4. knowledge of various changes in the nervous system in many somatic diseases, their early diagnosis, treatment, prophylaxis, and prognosis. | | | |
|  | Basic principles in the examination of the neurological patient. Management of acute and chronic pain. Management of vascular risk factors for primary and secondary prophylaxis of strokes. Management of the multidisciplinary team in the assistance of strokes. Principles for addressing neuroinfections, demyelinating, and degenerative diseases of the central and peripheral nervous system. Approaching the patient with epilepsy, neuromuscular diseases: myasthenia gravis, Guillain-Barre syndrome. | | | |
| Outcomes | • to know the anatomophysiological peculiarities of sensitivity  • to know the clinical manifestations of impaired superficial and deep sensitivity  • to apply diagnostic methods (clinical, objective, paraclinical neurological status) of diseases associated with sensitivity impairment;  • to know the anatomophysiological peculiarities of the central and peripheral motor neuron  • to apply in practice the theoretical knowledge about the anatomy and physiology of the pyramidal system  • to know the notion of motor unit and the notion of paresis and paralysis  • to define the clinical syndromes affecting the central and peripheral motor neuron  • to differentiate the involvement of the central motor neuron (central paralysis) and the peripheral motor neuron (peripheral paralysis)  • to know the technique of the voluntary motility exam  • to define the anatomophysiological peculiarities of the extrapyramidal system  • to define hypertonic-hypokinetic and hyperkinetic-hypotonic syndromes  • to know the semiology of involuntary movements: tremor (parkinsonian, attitude, action), chorea, athetosis, dystonia, iatrogenic dyskinesias, tics, facial hemispasm, myoclonus, hemibalism  • to know the pathogenesis, clinical manifestations, treatment of Parkinson's disease  • to know the etiology, clinical manifestations, treatment of Sidenham chorea, tics, Huntington's chorea  • to define the anatomical and physiological principles of the constitution of the cerebellum  • to know the semiology of cerebellar damage: ataxia, asymmetry, asynergy, adiadohokinesis, intentional tremor, language and writing disorders  • to know the algorithm for diagnosing the symptoms and signs of cranial nerve damage  • to apply in clinical practice the knowledge gained by students to preclinical objects about the anatomy and physiology of cranial nerves  • to know the technique of clinical examination of cranial nerve function  • to know the definition and topographic classification of alternating syndromes  • to appreciate correctly and to know the management of bulbar and pseudobulbar disorders  • to know general notions of vertigo  • to know the clinical manifestations and treatment principles of benign positional paroxysmal vertigo; facial neuritis / neuropathy; trigeminal neuralgia  • to know the anatomophysiological peculiarities of the vegetative nervous system  • to know the classification of vegetative disorders  • to know the clinical manifestations of vegetative nervous system damage in neurological diseases  • to appreciate the role of the vegetative nervous system in the pathogenesis of psychosomatic diseases  • to define the notion of syncope, etiology and differential diagnosis  • to know the manifestations of the panic attack and its treatment  • to know the notion of headache: classification, diagnostic criteria for primary headaches, treatment principles  • to know the cortical analyzers and to appreciate the signs of impairment of the cortical analyzers  • to know the superior functions of the cerebral cortex (language, praxis, gnosis, writing, arithmetic, etc.) and their signs of impairment  • to define the notion of aphasia  • to define the notion of agnosia  • to define the notion of apraxia  • to define the notion of amnesia  • to define the normal and modified state of consciousness  • to know the anatomical substratum of consciousness  • to know the etiopathogenetic mechanisms of coma  • to demonstrate skills of unconscious examination of the patient  • to apply the information obtained to differentiate between different states of consciousness disorder  • to interpret the results of imaging and laboratory investigations in the diagnosis of comatose states  • to understand the usefulness of the Glasgow scale in assessing consciousness  • to define ischemic stroke and its types  • to define non-modifiable and modifiable risk factors and their significance for the onset of ischemic stroke  • to know the causes of ischemic stroke  • to know the vascularization of the brain and the self-regulatory mechanisms  • to know the clinical manifestations of ischemic stroke  • to interpret the imaging changes of the ischemic stroke on the images by computed tomography and nuclear magnetic resonance  • to define the notion of “therapeutic window” and its significance in the management of the patient with acute stroke  • to understand the usefulness of the NIHSS score in assessing the severity of stroke  • to know how to perform drug and mechanical thrombolysis, indications and contraindications of procedures  • to make an optimal decision during the superacute period of the stroke and to know the management at the pre- and intra-hospital stage  • to demonstrate communication skills with the patient in order to explain the cause of the stroke, the risk factors and the ways to influence them  • to report on the principles of neurological recovery of the patient with stroke  • to prescribe drugs for the primary and secondary prophylaxis of cerebrovascular diseases  • to know clinical manifestations, complementary investigations and treatment of intracranial venous thrombosis  • to define hemorrhagic stroke and its types  • to know the causes and pathogenesis of hemorrhagic stroke  • to know the clinical manifestations of subarachnoid hemorrhage  • to interpret the imaging changes of the hemorrhagic stroke on the images by computed tomography and nuclear magnetic resonance  • to understand the usefulness of the Hunt-Hess scale in assessing the severity of subarachnoid hemorrhage  • to define meningitis and encephalitis  • know the principles of classification of meningitis and encephalitis  • to know the causative agents of bacterial and aseptic meningitis  • to report the etiology of encephalitis  • to understand the pathogenesis of meningitis and encephalitis  • to know the meningitic triad  • to know the clinical manifestations of meningitis and encephalitis  • to demonstrate skills in correct assessment and interpretation of meningeal signs  • to know the evolutionary clinical features of meningitis depending on the causative agent  • to identify the topographic diagnosis of brain lesions in the patient with encephalitis  • to know the manifestations of nervous system damage during coronavirus infection (COVID-19)  • to know the technique of performing the lumbar puncture, the indications and contraindications for the procedure  • to define myelitis and myelopathy  • to know the classification of lambs  • to know the etiological factors of myelitis and myelopathies  • to understand the mechanisms of pathogenesis of myelitis depending on the cause  • to know the clinical manifestations of myelitis and myelopathy  • to identify the topical diagnosis of spinal cord injury in patients with myelitis and myelopathy  • to know the useful paraclinical methods in the diagnosis of myelitis / myelopathy and to argue their usefulness  • define multiple sclerosis  • to explain the pathogenesis in multiple sclerosis  • to know the diagnostic criteria according to McDonald 2017  • describe the characteristic imaging changes in multiple sclerosis  • to know the symptomatic treatment in exacerbations of multiple sclerosis  • to know the possibilities of immunomodulatory treatment in multiple sclerosis  • to define myasthenia gravis  • to explain the pathogenesis in myasthenia gravis with anti-Achr and anti-musk antibodies  • to describe the clinical picture in myasthenia gravis  • to interpret electrophysiological tests in myasthenia gravis (EMG decrement)  • to define the myasthenic crisis and the cholinergic crisis  • to know the principles of treatment in myasthenia gravis  • to define paraneoplastic syndrome  • to explain the pathophysiogenetic mechanisms of paraneoplastic syndrome  • to know the forms of damage of the central and peripheral nervous system in paraneoplastic syndromes  • to know the principles of serological and imaging diagnosis in paraneoplastic syndromes  • to define seizures  • to define epilepsy  • to know the classification of seizures  • to understand the mechanisms of epileptogenesis  • to know the clinical manifestations of epilepsy  • to demonstrate the ability to make the differential diagnosis of states of loss of consciousness  • to explain the electrophysiological changes of generalized and focal seizures  • to define the condition of epileptic malaise  • to know the algorithm for treating epileptic disease  • to know the principles and algorithm of treatment of epilepsy  • to define temporal lobe epilepsy  • to know the clinical manifestations in temporal lobe epilepsy  • prescribe treatment in temporal lobe epilepsy  • to define autoimmune encephalitis  • to know the anatomical and physiological peculiarities of organizing the SNP  • to know the classification of disorders of the peripheral nervous system (SNP)  • to define the clinical forms of brachial plexopathy  • to know the etiology of brachial plexopathy  • to know the etiology and clinical manifestations of discogenic radiculopathy  • to define polyneuropathies, their classification  • to know the etiology, the pathophysiological mechanisms of peripheral nerve damage  • to know the particularities of the clinical manifestations of neuropathies in diabetes, alcohol intoxication and phosphororganic substances  • to appreciate the usefulness of the examination of cerebrospinal fluid in the diagnosis of acute inflammatory demyelinating polyneuropathy (Guillain-Barre syndrome)  • to know the classification of hereditary diseases of the nervous system  • to define the types of transmission in various hereditary diseases of the nervous system  • to know the clinical forms of myopathies, neural amyotrophies, myotonia  • to know the clinical forms of Wilson's disease  • to demonstrate practical skills for assessing the signs of peripheral and central paresis, signs of damage to the basal ganglia, clinical maneuvers to identify muscle disease (myopathy, myotonia)  • to make the differential diagnosis of progressive muscular dystrophies, neural amyotrophies (sensorimotor neuropathies), myotonia  • to perform the differential diagnosis of extrapyramidal disorders in Wilson's disease with other hereditary and acquired extrapyramidal diseases  • to define the investigations used in neurology for the diagnosis of hereditary diseases (laboratory tests, genetic tests, electrophysiological examination) | | | |
| Clinical skills | **To be able to examine:** The level of vigilance; Language function (fluency, comprehension, repetition and naming); Memory (short-term and long-term); Calculus; Assessment of cognitive status using the MMSE scale (Mini Mental State Examinatio), the MoCA test (Montreal Cognitive Assessment).  **Examination of cranial nerves function:** Examination of olfactory function; Examination of visual function (visual acuity, visual field); Examination of oculomotor function (position of eyeballs, presence of convergent / divergent strabismus, uni-, bilateral ptosis, anisocoria, motility of eyeballs, photopupillary reaction); Examination of tactile sensitivity and facial pain; Examination of facial muscle strength (facial expression muscles); Examination of vestibulo-cochlear function (vertigo, hearing loss, nystagmus, Romberg position); Examination of swallowing, articulation of speech, phonation, palatal movement and tongue, pharyngeal reflex, velopalatine; Examination of neck movement (head rotation, shoulder lift).  **Examination of motor function:** Examination of position and gait (normal gait, fingertips and heels, tandem gait); Examination of the coordination function (fine movements of the fingers, diadokokinesia, index-nose and heel-knee test, nystagmus); Highlighting involuntary movements; Examination of muscle strength (upper and lower barbell test, shoulder abduction, elbow flexion / extension, hand flexion / extension, finger flexion / extension / abduction, thigh flexion / extension, knee flexion / extension, plantar extension / flexion); Examination of muscle tone.  **Examination of reflexes:** Osteotendinous reflexes (biceps, triceps, carporadial, patellar, Achilles); Pathological reflexes (Hoffman's sign, Babinski); Reflexes of oral automatism: Marinescu-Radovici, horn.  Sensitivity examination: Examination of tactile sensitivity and pain; Examination of proprioception and sense of vibration.  **Examination of meningeal signs:** stiffness of the occipital muscles; the Kernig sign; Brudzinskii sign: upper, middle, lower.  **Examination of signs of elongation:** Black; Lasegue; Mazkiewich; Patric, Bonnet.  **Examination of the patient in a coma**: pupils; position of the eyeballs; corneal reflex; face symmetry; reaction to pain stimuli; osteotendinous reflexes; pathological signs; muscle tone; meningeal signs; Glasgow score. | | | |
| Evaluation form | Exam | | | |