

Syllabus of discipline "CURRENT ISSUES OF CEREBRO-VASCULAR PATHOLOGY" ББ 1.83 2023-2024 academic year	
The name of the faculty	Dental
Educational program (area, specialty, level of higher education, form of education)	22 Healthcare, 222 Medicine, second (master's) level of higher education, full-time
Academic year	2023-2024
Name of discipline, code	ББ 1.83 «Current issues of cerebrovascular pathology» Kaf_neurology@meduniv.Lviv.ua
Department	79010, Lviv, LRCH, Y. Rufa str., 6 tel. +38 (032)2769325, 2368297, 2368397, 2368261, 2368326 Kaf_neurology@meduniv.Lviv.ua
Head of the department (contact e-mail)	Professor, Dr Med Sci, Nehrych Tetyana Kaf_neurology@meduniv.Lviv.ua
Year of study (year in which the study of the discipline is carried out)	6th year, medical faculty
Semester (semester in which the study of the discipline is implemented)	11-12 semesters
Type of course / module (mandatory / optional)	Elective discipline
Teachers (names, surnames, scientific degrees and titles of teachers who teach the discipline, contact e-mail)	Nehrych Tetyana, Dr Med Sci, Professor, Head of the Department of Neurology Maryenko Lidiya, Dr Med Sci, Professor of the Department of Neurology Natalia Malyarska, PhD, Associate Professor of the Department of Neurology Matvienko Yuriy, PhD, Associate Professor of the Department of Neurology Bozhenko Natalia, PhD, Associate Professor of the Department of Neurology Shorobura Maria, PhD, Associate Professor of the Department of Neurology Pshyk Roman, PhD, Lecture Assistant of the Department of Neurology Wiwchar Roman, Lecture Assistant of the Department of Neurology Bozhenko Myroslav, Lecture Assistant of the Department of Neurology Kaf_neurology@meduniv.Lviv.ua
Person responsible for the syllabus (person to be commented on the syllabus, contact e-mail)	Natalia Malyarska Kaf_neurology@meduniv.Lviv.ua
Number of ECTS credits	3,0
Number of hours	90 hours - total: 20 hours - practical classes, 70 hours - independent work
Language of instruction	Ukrainian
Information about consultations	according to the schedule of consultations (presented at the department)
Address, telephone and regulations of the clinical base	79010, Lviv, LRCH, Y. Rufa str., 6 tel. +38 (032)2769325, 2368297, 2368397, 2368261, 2368326

2. Short annotation to the course

The program of the discipline "**Current issues of cerebrovascular pathology**" is designed to train specialists of the second (master's) level of higher education in the field of knowledge 22 "Health", specialty 222 "Medicine". The program offers the definition of etiological factors and pathogenetic mechanisms of the development of major cerebrovascular diseases; formation of a preliminary diagnosis of vascular pathology; analysis of the main indicators of laboratory and instrumental research methods; planning the tactics of management of a patient with cerebrovascular pathology from the standpoint of evidence-based medicine using modern guidelines (protocols) to determine the severity, prognosis, capabilities and scope of rehabilitation measures. A monument of primary and secondary prevention of vascular pathology has been developed. The educational process is organized according to the European credit transfer system ECTS. The program is designed for 120 teaching hours / 4 credits.

3. The purpose and objectives of the course

The purpose of teaching the discipline "**Current issues of cerebrovascular pathology**" (the ultimate goal) is to prepare a master's degree in the specialty. The description of goals is formulated through skills in the form of target tasks (actions). On the basis of the ultimate goals for the test, specific goals are formulated in the form of certain skills (actions), target tasks that ensure the achievement of the ultimate goal of studying the discipline.

Learning objectives: to determine the tactics of examination of the patient and formulate a clinical diagnosis (review of neurological status, use scales to determine the severity of the disease, prescribe the necessary laboratory and instrumental research methods, provide emergency care for vascular diseases, develop rehabilitation and preventive measures from evidence-based medicine; have the knowledge to fill in the recommendations for the patient and his caregivers, demonstrate mastery of the principles of deontology.

The study of the discipline provides competencies (general and special competencies):

-general:

- ability to act socially responsibly and consciously;
- ability to apply knowledge in practical situations;
- ability to abstract thinking, analysis and synthesis. ;
- ability to communicate in the native language orally and in writing;
- ability to communicate with representatives of other specialties.

-special (professional, subject):

- to determine the tactics of examination and management of the patient of various vascular diseases;
- interpret the results of laboratory and instrumental methods of vascular pathology research;
- formulate a preliminary clinical diagnosis of the disease;
- formulate general treatment tactics;
- demonstrate the ability to maintain medical records for patients with vascular pathology;
- demonstrate mastery of the principles of clinical deontology.

4. Course details

"Current issues of cerebrovascular pathology" discipline consists of theoretical and practical sections. The theoretical section has a professional and applied nature and is implemented in the form of explanations of educational material in the course of practical classes (anatomical and physiological features of blood supply to the nervous system, etiology and risk factors of vascular diseases of the nervous system, classification of vascular diseases of the brain and spinal cord, leading acute acute syndromes). and chronic cerebrovascular disorders, principles of differentiated and undifferentiated treatment of vascular diseases, methods of clinical and instrumental examination of patients, principles of non-drug and drug rehabilitation, basics of primary and secondary prevention of vascular diseases, understanding the use of drugs for treatment and treatment) students study special literature, write essays and present multimedia presentations, participate in the work of a scientific student group in neurology. The practical section involves students mastering practical skills and abilities, the use of standards with the formation of knowledge about the diagnosis, treatment, prevention and rehabilitation of vascular pathology from the standpoint of evidence-based medicine.

5. Program learning outcomes

The study of the discipline "**Current issues of cerebrovascular pathology**" provides the following program learning outcomes:

Knowledge: the main modern methods of diagnosis and treatment, their purpose according to treatment protocols from the standpoint of evidence-based medicine; demonstrate knowledge of systematization and diagnosis; to analyze instrumental and laboratory methods of examination, treatment protocols and examinations of patients that are accepted and implemented in the state.

Skills: to master the principles of classification of vascular diseases of the brain; analyze clinical forms of ischemic strokes; principles of undifferentiated and differentiated treatment of strokes; prevention of acute cerebrovascular disorders, interpret neurological syndromes in vascular pathology of the brain and spinal cord; to assimilate drugs used in patients with vascular profile from the standpoint of evidence-based medicine; to examine patients, to formulate a preliminary and to make a differential diagnosis of vascular diseases of the brain and spinal cord.

Communication: Establish appropriate connections to achieve goals. To form a communication strategy in professional activity. Use information and communication technologies in professional activities. Adhere to the provisions of the Doctor's Code of Ethics when communicating with patients and colleagues. Adhere to the current legal norms of the "doctor" → patient relationship during professional activity. Maintain a healthy psychological microclimate in the team. Interact with medical staff at the neurology clinic.

Autonomy and responsibility: continuous professional development with a high level of autonomy; the validity of the decisions made to solve problems of professional activity; observance of moral and ethical principles of the medical specialist and rules of professional subordination; their civic position and activities; observance of the current legal norms of the "doctor → patient" relationship; a sense of responsibility for the correctness, and timeliness of care to the patient. Adhere to the requirements of ethics, bioethics and deontology in their professional activities. Adhere to the relevant ethical and legal norms.

6. Course format and scope

Course format	Full-time	
Kind of classes	Number of hours	Number of groups
Lectures	-	
Practical classes	20	
Seminars	-	
Independent	70	

7. Topics and content of the course (appendix attached)

In the process of studying the discipline "**Current issues of cerebrovascular pathology**" teaching methods are used:

- by type of cognitive activity: explanatory-illustrative, analytical, synthetic, inductive, deductive;
- the main stages of the process of knowledge formation, their application in clinical practice, generalization, formation of skills, consolidation, testing;
- system approach: stimulation and motivation, control and self-control;
- by sources of knowledge: verbal - story, conversation, visual - demonstration, illustration.

8. Verification of learning outcomes

Current control

is carried out during training sessions and aims to check the assimilation of students of educational material (it is necessary to describe the forms of current control during training sessions). Forms of assessment of current educational activities should be standardized and include control of theoretical and practical training. The final grade for the current educational activity is set on a 4-point (national) scale

Learning outcome code	Code type of the class	Method of verifying learning outcomes	Acceptance criteria
<i>3H-1-15, VM-1-15, K-1, AB-1</i>	<i>II - II-20, CPC-70</i>	Test control: the student receives 10 tests, answers and receives the result in	Test control: from 5-6 (50-60%) - satisfactory;

		<p>points (from 0 to 10) and percent (from 0 to 100). Individual oral examination of theoretical material, which is included in methodological developments on relevant topics;</p> <ul style="list-style-type: none"> - solving situational problems; - ability to differentiate different forms and manifestations of diseases; - Demonstration of practical skills: the student must be able to demonstrate practical skills in neurological status, which is listed. - drawing up a protocol of medical history 	<p>7-8 (70-80%) - good; 9-10 (90-100%) - excellent.</p> <p>Demonstration of practical skills: the student must be able to demonstrate all the structures that are in the list of practical skills.</p> <p>Answer to the teacher's question: the student answered all the teacher's questions, demonstrated the ability to think logically - excellent.</p> <p>The student answered all the questions of the teacher, demonstrated the ability to think logically, made 1-2 mistakes or inaccuracies - well. The student answered some questions of the teacher, demonstrated the ability to think logically, but is confused in the conduct of topical diagnostics - satisfactory.</p>
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Final control

The evaluation is conducted on a 200-point scale

The current control of students' knowledge is carried out at each practical lesson in accordance with the specific objectives of the topic, during the individual work of the teacher with the student for those topics that the student develops independently and which are not part of the practical lesson. The final score for the current educational activity is determined as the arithmetic mean of traditional grades for each lesson and is converted into a multi-point scale.

Form of final control of academic performance: the form of final control of the discipline is a test, which is conducted at the last practical lesson. Students who have attended all the classes provided by the curriculum in the discipline and scored a minimum number of points (not less than 72, which corresponds to the national scale "3") are admitted to the test. A student who, for a good reason, has missed classes, is allowed to work off the academic debt until a certain deadline. For students who missed classes without good reason, the decision to complete them is made individually by the dean of the faculty. A package of test tasks is being solved, which includes basic test tasks "Step-2" in the amount of at least 40 tests.

Distribution of points received by students: evaluation of the results of the discipline is carried out during a differentiated test. The grade in the discipline is defined as the sum of points for the current educational activity and credit and is min - 120 to max - 200.

Points for current performance and credit are added up. The obtained points correspond to a fixed scale of assessments.

Grade "5" - 200-170 points;

Grade "4" - 169-140 points;

Scores "3" - 139-120 points.

Assessment of independent work:

Assessment of students' independent work, which is provided in the topic along with classroom work, is carried out during the current control of the topic in the relevant classroom.

10. References:

1. Neurology = Неврологія : textbook for students of higher education establishments - medical universities, institutes and academies. / edit by L.A.Hryhorova, L. I. Sokolova. - K. : AUS Medicine Publishing, 2017. - 624 c.
2. Neurology: Clinical Cases [Текст] = Неврологія=Клінічні задачі : A practical guide for students of higher medical education institutions of the IV level.of accred. (Recom.MHU №2 as of Juli 1, 2012) / L. Sokolova, L. Panteleienko, T. Dovbonos, V. Krylova ; edit by L. Sokolova. - K. : AUS Medicine Publishing, 2016. - 96 c.
3. Stuhan Davis. Neurology: NEUROLOGY CLINICAL PRACTICE AND CRITICAL CARE: The Clinical Practice of Neurology (Kindle Edition) Amazon Digital Services LLC (August 22, 2019).
4. Mervat Wahba. The Clinical Practice of Critical Care Neurology: clinical localization, Diagnosis & Treatment in Clinical Neurology and Neuroanatomy, of
5. Neurological disorders and the investigative modalities (Kindle Edition) Amazon Digital Services LLC (August 8, 2019)
6. Pietro Mazzoni, Toni Pearson, Lewis P Rowland. Merritt's Neurology Handbook (Hardcover) LWW; Thirteenth edition (October 3, 2015).

Internet resources:

1. http://meduniv.lviv.ua/index.php?option=com_content&view=article&id=137&Itemid=173&lang=uk
<http://www.mif-ua.com/archive/mezhdunarodnyij-nevrologicheskij-zhurnal/numbers>
<http://neuronews.com.ua>

Survey: Questionnaires to assess the quality of the course will be conducted at the end of the course.

11. Equipment, material and technical and software of the course - Multimedia projector, personal computer, stimulation techniques, MISA distance learning platform.

12. Additional Information

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Responsible for the educational process at the department: Assoc. Prof. Natalia Malyarska

Head of the scientific student group: Lecturer Ass. Bozhenko Myroslav

Responsible for safety at the department: Lecturer Ass. Wiwchar Roman

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Malyarska Natalia, PhD, Associate Professor

(Signature)

Head of Department

Negrych Tetyana, Dr Med Sci, professor

(Signature)

ADDITION

scheme of the discipline " **Current issues of cerebrovascular pathology**"

Class type code	Topic	Learning content	Learning outcome code	Teacher
П-1 2 hours	Anatomical and physiological features of the blood supply to the brain.	Circle of Willis: common carotid artery, external carotid artery. Vertebral artery. The main artery. Autoregulation of cerebral circulation.	ЗН -1 ЗН -2 УМ-1 УМ-2 УМ-3 УМ-4	<u>According to the schedule</u>

		circulation.	УМ-4 К-1 К-2	
II-2 1 hours	Classification, etiology and risk factors for vascular diseases of the brain.	Classification of vascular diseases of the brain (according to ICD-10). Etiology (atherosclerosis, hypertension, their combination and others). Risk factors (hypertension, heart disease, TIA; possible nicotine intoxication, alcohol abuse, overweight, gender, age, hereditary predisposition and others).	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<u>According to the schedule</u>
II-3 2 hours	Transient ischemic attack, Acute hypertensive encephalopathy. Cerebral vascular crisis.	Pathogenesis. Transient ischemic attacks. Hypertensive cerebral crises. Acute hypertensive encephalopathy.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<u>According to the schedule</u>
II-4 1 hours	Ischemic stroke (cerebral infarction).	Pathogenesis (atherothrombosis, atherosclerosis, cardioembolism, lacunar infarction, coagulopathy). Thrombotic, non-thrombotic, embolic. Morphological and biochemical bases of ischemic stroke. Variants of clinical manifestations of ischemic stroke in different blood supply basins.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<u>According to the schedule</u>
II-5 2 hours	Intracerebral hemorrhage. Subarachnoid hemorrhage.	Etiology (hypertension, atherosclerosis and their combinations, congenital vascular abnormalities, blood diseases, use of anticoagulants, injuries, etc.). Pathogenesis (features of vascularization). Pathomorphology. Clinical picture (general cerebral symptoms, focal neurological symptoms). Lateral, medial hematomas, hemorrhages in the trunk, hemorrhages	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<u>According to the schedule</u>

		in the cerebellum. Etiology (congenital and acquired anomalies of cerebral vessels, hypertension, atherosclerosis, intoxication, infectious lesions of the vessels of the meninges and others). Clinical picture of spontaneous subarachnoid hemorrhage (disorder of consciousness, autonomic disorders, epileptic seizures, meningeal symptoms, arterial spasm). Features of the clinic of aneurysms of different localization.		
II-6 1 hours	Chronic cerebrovascular disorders.	Initial manifestations of cerebral insufficiency (asthenia, hypertension, atherosclerosis. Clinical picture. Chronic brain ischemia (hypertensive, atherosclerotic, developmental stages). Vascular dementia (Binswanger's disease, Alzheimer's disease).	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-7 2 hours	Venous circulation disorders.	Structure of the venous system of the brain. Venous sinuses. Features of venous hemorrhage disorders.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-8 1 hours	Methods of examination of patients with vascular diseases of the brain. Treatment of cerebrovascular disorders (differential and non-differential therapy).	Use of a unified protocol for treatment, prevention and rehabilitation of stroke patients. Treatment of patients from the standpoint of evidence-based medicine.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-9 2 hours	Basic methods of rehabilitation (unified protocol of treatment, prevention and rehabilitation of vascular patients).	Early onset of rehabilitation, its duration, regularity, stages, complexity, active participation of the patient. Medical rehabilitation. Outpatient rehabilitation.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1	<u>According to the schedule</u>

	Prevention system (primary and secondary).	Primary prevention (combating the main risk factors for vascular diseases of the brain); secondary prevention (early recognition of pre-stroke pathology and its active treatment).	K-2	
II-10 1 hours	Blood supply to the spinal cord. Physiology and pathophysiology of spinal circulation.	Arterial pools along the length and diameter of the spinal cord. Venous system of the spinal cord. Syndrome of complete transverse lesion. Syndromes of defeat of a ventral zone of a cross, a syndrome of defeat of a dorsal zone of a cross.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-11 2 hours	Topography of infarction across the spinal cord. Variants of the clinical picture. Topography of ischemia along the length of the spinal cord. Variants of the clinical picture.	Ischemia of the upper cervical segments of the spinal cord. Ischemia of segments of cervical thickening of the spinal cord. Ischemia of the upper thoracic segments. Common infarction of the lower half of the spinal cord (Adamkievich artery occlusion syndrome). Thoracic infarction and lumbar thickening.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-12 1 hours	Hemorrhagic lesions of the spinal circulation. General principles of treatment and examination of incapacity for work of patients with vascular lesions of the spinal circulation.	Hematomyelia. Spinal subarachnoid hemorrhage. Epidural hematoma.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II-13 2 hours	Curation of patients. Analysis of patients.		3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 K-1 K-2	<u>According to the schedule</u>
II - 14 1 hours	Functional diagnosis of vascular diseases. Drugs used for the prevention and	Ultrasound (echoencephalography, Doppler sonography), electrophysiological	3H-1 3H-2	<u>According to the schedule</u>

	treatment of vascular patients.	(electroencephalography) methods, methods of neuroimaging (computed tomography, magnetic resonance imaging, including vascular), positron emission tomography. Groups of drugs used to treat vascular diseases.		
II-15 2 hours	Credit lesson:		3H-1 3H-2 Y _M -1 Y _M -2 Y _M -3 Y _M -4 K-1 K-2	<i>According to the schedule</i>
C-1 5 hours	Anatomical and physiological features of the blood supply to the brain.	Autoregulation of cerebral circulation.	3H-1 3H-2	<i>Current control in practical classes</i>
C – 2 5 hours	Classification, etiology and risk factors for vascular pathology.	ICD-10.	Y _M -1 Y _M -2 Y _M -3 Y _M -4 K-1 K-2	<i>Current control in practical classes</i>
C-3 5 hours	Transient cerebrovascular disorders: TIA, cerebral vascular crisis, acute hypertensive encephalopathy.	Primary prevention of vascular pathology.	3H-1 3H-2 Y _M -1 Y _M -2 Y _M -3 Y _M -4 K-1 K-2	<i>Current control in practical classes</i>
C – 4 5 hours	Ischemic stroke (cerebral infarction).	Valid scales to determine the severity of stroke, course and appointment of rehabilitation.	3H-1 3H-2 Y _M -1 Y _M -2 Y _M -3 Y _M -4 K-1 K-2	<i>Current control in practical classes</i>
C – 5 5 hours	Intracerebral hemorrhage. Subarachnoid hemorrhage.	Protocol for diagnosis and treatment of hemorrhagic stroke.	3H-1 3H-2	<i>Current control in practical classes</i>
C-6 10 hours	Methods of examination of patients with vascular diseases of the brain.	Algorithm for examination of a patient with suspected stroke.	3H-1 3H-2	<i>Current control in practical classes</i>
C -7	Basic methods of	Early Rehabilitation	3H-1	<i>Current</i>

10 hours	rehabilitation. System of primary and secondary prevention.	Protocol for Stroke Patients.	3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<i>control in practical classes</i>
C – 8	Blood supply to the spinal cord. Physiology and pathophysiology of spinal circulation. Variants of the clinical picture.	Anatomy of spinal cord blood supply: in diameter, length, anastomoses, and mechanisms of autoregulation of spinal cord blood supply.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<i>Current control in practical classes</i>
C – 9	Chronic disorders of cerebral and spinal blood supply.	Risk factors, prevention, examination algorithm, treatment and rehabilitation.	3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<i>Current control in practical classes</i>
C – 10	Basic principles of treatment, examination of patients with vascular pathology of the brain and spinal cord.		3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	<i>Current control in practical classes</i>
C – 11	Curation of patients. Analysis of patients. Final lesson.		3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4	<i>Current control in practical classes</i>
C – 12 70 hours	Individual independent work of the student: participation in work of a student's scientific circle, interuniversity competitions.		3H-1 3H-2 УМ-1 УМ-2 УМ-3 УМ-4 К-1 К-2	
Total: Practical classes - 20 hours. Independent students' work - 70 hours.				