Ministry of Public Health of Ukraine
Ukrainian Medical Stomatological Academy

Approved
At the meeting of the department of neurological diseases with neurosurgery and medical genetic "__" ____________20___
Protocol №_________
Head of department
___________ prof. Delva M.Yu.

METHODOICAL INSTRUCTIONS
FOR THE INDEPENDENT WORK OF STUDENTS
FOR PREPARATION TO PRACTICAL CLASSES
AND DURING PRACTICAL CLASSES

<table>
<thead>
<tr>
<th>Educational discipline</th>
<th>General medical practice</th>
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<tbody>
<tr>
<td>The module № 2</td>
<td>Neurology, including neurostomatology</td>
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<tr>
<td>Course</td>
<td>IV</td>
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<tr>
<td>Faculty</td>
<td>Foreign Students Training (stomatological)</td>
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Poltava 20___
1. **Learning outcomes:**

- general competencies:
  1. ability to think, analyze and synthesize.
  2. Ability to learn and master modern knowledge.
  3. Ability to apply knowledge in practical situations.
  4. Knowledge and understanding of the subject area and understanding of professional activity.
  5. Ability to adapt and act in a new situation.
  6. Ability to make informed decisions.
  7. Ability to work in a team.
  8. Skills of interpersonal interaction.
  9. Ability to communicate in the state language both orally and in writing.
  10. Ability to communicate in a foreign language
  11. Skills in the use of information and communication technologies.
  12. Determination and persistence on the tasks and duties taken.
  13. Ability to act socially and consciously.
  14. The desire to save the environment.
  15. Ability to act on the basis of ethical considerations (motives);

- subjects competencies:
  1. interviewing skills and clinical examination of the patient.
  2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.
  3. Ability to establish a syndrome diagnosis of the disease.
  4. Ability to establish a preliminary and clinical diagnosis of the disease
  5. Ability to diagnose urgent conditions.
  6. Emergency medical care skills.
  7. Skills for performing medical manipulations.
  8. Ability to maintain medical records.
  9. Ability to carry out sanitary and preventive measures.
10. Ability to provide the necessary mode of staying a patient in a hospital for the treatment of diseases.

2. **Specific objectives:**

To analyze the data from case history, which indicate the family, the hereditary nature of the disease. To explain the clinical symptoms of the lesions that occur in hereditary diseases, to be able to diagnose symptoms of motorway damage (pareses and paralyses, sensitivity disorders); Analyze the clinical signs of central and peripheral paralyses (pareses), syndromes of the extrapyramidal system, the cerebellum, using knowledge of the human reflex sphere, conducting paths of voluntary movements, of the cerebellum and the striatum-pallidum system. To classify the hereditary diseases. To interpret the findings obtained as a result of patient's examination. To draw a graph of the logical structure on the topic. To analyze the data of additional study methods. To draft an individual treatment plan.

2. **Basic level of training**

<table>
<thead>
<tr>
<th>Disciplines</th>
<th>To know</th>
<th>To be able</th>
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<tbody>
<tr>
<td>Anatomy</td>
<td>Anatomy of the somatic and vegetative nervous system</td>
<td>Scheme to reflect the structures of the somatic and vegetative nervous system of person. To remember basic somato-vegetative innervation on head.</td>
</tr>
<tr>
<td>Physiology</td>
<td>Functional somatic and vegetative nervous system of face</td>
<td>To determine the basic functions of the somatic and vegetative nervous system of person</td>
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<tr>
<td>Stalemate. anatomy</td>
<td>Structurally-morphological changes of the somatic and vegetative nervous system of person</td>
<td>To expose the structurally-morphological changes of the somatic and vegetative nervous system of person in the neurogenic face diseases, Headaches, Myofascial pain Syndrome.</td>
</tr>
<tr>
<td>Stalemate. physiology</td>
<td>Stalemate. physiological features of development of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
<td>To determine pathogeny of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
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<tr>
<td>Biochemistry</td>
<td>Basic neurotransmitters</td>
<td>To account for influencing of neurotransmitters of noci-and of</td>
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antinociceptive systems on forming of the pains phenomena at neurogenic face diseases, headaches, myofascial pain syndrome.

<table>
<thead>
<tr>
<th>Pharmacology</th>
<th>Mechanisms of action of the medications applied at the defeats neurogenic face diseases, headaches, myofascial pain syndrome.</th>
<th>To appoint medicinal treatment at the defeat of neurogenic face diseases, headaches, myofascial pain syndrome.</th>
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<tbody>
<tr>
<td>Biophysics</td>
<td>Mechanisms of action of physical therapies methods of treatment of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
<td>To appoint physical therapy treatment at neurogenic face diseases, headaches, myofascial pain syndrome.</td>
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**2. Next disciplines**

<table>
<thead>
<tr>
<th>Stomatology</th>
<th>Odontogenic reasons and clinical displays of defeats of neurogenic face diseases, headaches, myofascial pain syndrome.</th>
<th>To conduct diagnostics and treatment of neurogenic face diseases, headaches, myofascial pain syndrome.</th>
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<tr>
<td>Psychiatry</td>
<td>Features of psychical disorders at the defeats of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
<td>To conduct diagnostics of psychical disorders which are most characteristic for the defeats of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
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<tr>
<td>Ears-eyes-nose</td>
<td>Nasal-, ears reasons and clinical displays of defeat of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
<td>To conduct diagnostics and treatment of eyes-, nasal neurostomatological syndromes</td>
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<tr>
<td>Eyeing illnesses</td>
<td>Eyeing reasons and clinical displays of neuralgias of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
<td>To conduct differential diagnostics of defeats of neurogenic face diseases, headaches, myofascial pain syndrome.</td>
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**3. Intrasubjects integration**

| Neuroses | Clinical signs of neurotic syndrome at patients with neurogenic face diseases, headaches, myofascial pain syndrome. | To expose the signs of neurotic and depressed syndrome at patients with neurogenic face diseases, headaches, myofascial pain syndrome. |

**3. Plan and organization structure of the class in the academic subject**

<table>
<thead>
<tr>
<th>No</th>
<th>Stages and main issues of the class</th>
<th>Time allocation</th>
<th>Types of control</th>
<th>Training means</th>
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<tbody>
<tr>
<td>1.</td>
<td>Organizational issu</td>
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6. The methodology of organization of the training process during a practical session.

6.1. NEUROGENIC FACE DISEASES
1. Angioneurotic edema (Quincke's edema)
2. Rossolimo-Melkerson-Rosenthal syndrome
3. Sjogren's syndrome
4. Progressive facial hematrophy (Parry-Romberg syndrome)

HEADACHE
1) Headache is called an unpleasant, negatively emotionally colored sensation in the part of the head from the superciliary to the back of the head (mainly the scalp to the neck), which are described in terms of cephalgia, cranialgia. Pain in the face is called facial pain (prosopalgia). The source of headaches and facial pains is the irritation of sensitive structures in these areas, the main ones being the large vessels of the base of the brain and skull, hard and soft membranes of the brain, venous sinuses of the hard membrane, sensitive cranial nerves, as well as structures of the skull, its cavities and soft tissues (muscles and skin), organs of vision and hearing. The brain itself is not sensitive to pain stimuli (as well as directly to the bones of the skull - except for the periosteum).
2) The classification of headaches includes primary and secondary cephalgia. The primary headache is an independent nosological unit, and the secondary is a concomitant symptom of various diseases.

6.2. The main stage.
MIGRAINE. It is one of the most common causes of primary recurring headaches in humans. According to epidemiological estimates, migraine is common in the population up to about 18%. It is more common in women (some estimates speak of 25% of women and 17% of men!). This is for the most part a hereditary, familial disease. The patient’s medical history that some of his close relatives also suffered from repeated headaches is an important argument in favor of the diagnosis of migraine.

The pathogenesis of migraine remains rather mysterious. The available data indicate that the so-called trigeminovascular system is involved in the pain generation process, given that most intracranial vessels are obtained from the trigeminal system. In the first phase, it was believed that a short-term spasm of the vessels of a certain area occurs. This was associated with the appearance of symptoms of focal neurological deficit, such as visual impairment, flickering of "stars" or bright lines in the field of vision, numbness of a part of the face or even half of the body (with familial hemiplegic migraine - temporary hemiparesis), double vision, and the like. These symptoms are characteristic at the beginning of an attack with the so-called classical migraine and neurological deficit usually does not last more than 60 minutes (migraine aura), after which the actual headache begins. In this phase, it is believed that serotonin is rapidly ejected from the depot (nerve terminal, platelets, vascular wall) and the result is a further depletion of the serotonin content in the depot and the beginning of the phase of sustained vasodilation of a particular section of the vessel. The dilated vessel swells, aseptic inflammation begins in its wall with irritation of pain trigeminal receptors. The pain gradually increases to the level of intolerance, becomes pulsating, increases sharply during physical exertion, makes the patient lie quiet (sensitivity to external sounds and bright light increases), it is often accompanied by nausea and vomiting.

In the first phase of a migraine attack, a phenomenon such as cortical depression Leo, a wave of the electrophysiological phenomenon of depression of neurons, spreads over the cortex and is possibly responsible for the development of the focal neurological disorders mentioned above. The phenomenon underlies the spreading cortical depression, but it is probably associated with genetically determined defects in the functioning of the calcium and sodium membrane channels, and an increased release of excitatory amino acids (glutamate).

Migraine is usually divided into “classical” (with an aura before the attack) and “simple” forms (headache without aura). In both cases, there may be precursors - poor health, decreased mood and working capacity, impaired sleep and appetite, etc., preceding a headache attack in a day or two. In any case, the diagnostic criteria for establishing a diagnosis of migraine and qualification of repeated headaches as vascular, migraine type are the following:

A. less than 5 episodes that meet the criteria from B to D:
B. episodes of a headache that lasts from 4 to 72 hours (in children under 15 years of age - from 2 to 48 hours) - if not treated or treated unsuccessfully

B. headache is characterized by at least two of the following symptoms:
- one-way localization
- pulsating character
- moderate or severe intensity (which makes daily activity difficult or impossible)
- increased pain during physical exertion (climbing stairs, etc.)

G. At least one symptom accompanying a headache:
- nausea and / or vomiting
- increased sensitivity to sounds and light

The same criteria apply for classical migraine, but the criterion of aura, neurological focal disorder immediately before the onset of a headache is added (by the way, an aura is possible without a subsequent headache).

The triggering factors for a migraine attack can be any - weather changes, lack of sleep or too long sleep (weekend migraine), hunger or the use of certain foods containing tyramine - chocolate, cheese, red wine or champagne), menstruation in women, psychological stress, or vice versa, a state of complete relaxation, rest.

A neurological examination of migraine patients usually gives a negative result - in general, these are healthy people. But the examination should be carried out in accordance with all the rules to exclude possible other factors of headache, especially when it appears for the first time in life and is too intense.

The frequency of seizures varies widely - from 1 - 2 times a year to monthly, weekly or 3 - 5 times a week, when seizures merge into a chronic daily headache.

Migraine treatment is divided into 2 stages or 2 approaches. The first is the treatment of the attack itself, the so-called abortive (breaking off) therapy. The second approach is aimed at preventing attacks, reducing their frequency and, possibly, severity. The best means for abortion therapy today are direct agonists of serotonin receptors, the so-called triptans (sumatriptan, zolmitriptan, risatriptan and others). They quickly bind to serotonin receptors in the wall and cause narrowing of the vessel, “put it in place”, having both anti-edematous and anti-inflammatory effects on the vessel wall. The effect of the seizure of the attack is amazing, dramatic - with subcutaneous administration, it occurs after 6 - 15 minutes, with oral administration - after 15 - 30 minutes, often radically reducing or completely stopping the headache. But not all patients respond well to tolerate such treatment.

Alkaloids derived from ergotamine (ergotamine tartrate, dihydroergotamine) have a similar effect in the form of drops, nasal sprays or as part of combined preparations. An alternative is the use of high doses of NSAIDs (aspirin or paracetamol at a dose of 1 g, ibuprofen (imet), or a combination of several NSAIDs with the addition of caffeine and / or codeine. Before taking any drug, to reduce nausea and prokinetic effects on the stomach, it is recommended to take...
Motilium, which increases the effectiveness of therapy. Recently, it is considered advisable to carry out combined abortive therapy for migraine attacks: triplane in combination with NSAIDs.

In case of frequent seizures, more than 3 - 5 per month, resort to preventive therapy. Among drugs with a similar effect are beta-blockers, tricyclic antidepressants (amitriptyline, sarotene), calcium antagonists (verapamil, flunarizin), serotonin receptor antagonists (pisotifen, metisergid). Now the most popular and effective drugs for preventive treatment are anticonvulsants: valproic acid, gabapentin, lamotrigine (for cases of classic migraine, with aura). In the last year, the effectiveness of topiramate (topamax) has been demonstrated for both cases of classical and simple migraine (up to 100 mg per day for 3-6-12 months). An important condition for the proper management of patients with migraine is the fixation of seizures on a calendar - in this case, it is possible to reliably not only draw conclusions about the patterns of the process (menstrual migraine, etc.), but also objectively monitor the effectiveness of treatment.

One of the primary headache variants is CLUSTER HEADACHE (Suluder syndrome, Haris histamine migraine, Horton migraine neuralgia, etc.). The name was formed for the reason that seizures are grouped in a “bundle” (cluster) by time, that is, exacerbations of the disease can last several months a year and between the exacerbations there is a “bright” gap, without seizures.

The attack is characterized by special power, cruelty; the intensity of sudden pain rapidly increases intolerable. The pain is localized mainly in the eye and forehead, accompanied by lacrimation, redness of the eye and half of the face, swelling of the tissues, narrowing of the palpebral fissure, and discharge from the nose. The attack lasts 15 - 180 minutes and suddenly disappears. There can be from one to ten attacks per day, mainly at night. More often young men suffer; exacerbations often begin in the autumn or spring. Such pain is suicidal.

An injection of sumatriptan, or instillation of a 0.1% dicaine solution in an appropriate nostril, is effective for treating an attack. Increased seizures (cluster) are treated with hormone courses (prednisone 2–3 weeks, 1 mg / kg / day) and indomethacin. Lithium preparations work well.

The most common type of headache in a person is TENSION HEADACHE. The diagnostic criteria for episodic tension headache are:
A. At least 10 episodes of headache that meet the criteria B - D and occur less than 180 days a year:
B. episodes last from 30 minutes to 7 days
B. At least two of the following characterize pain:
- pressing, compressing, not pulsating
- soft or medium intensity and not affecting everyday activity
- bilateral
- not amplified by loading, running or climbing stairs
G. Both characteristics are present:
- no nausea and vomiting
- no or very rarely photo or phonophobia
At least one of the following is correct:
- the medical history and physical examination are not consistent with any other known type of headache or
- other types of headaches can be excluded by additional methods; or
- another type of headache, if present, is different and does not correlate with tension headache.

CHRONIC TENSION HEADACHE is characterized, in addition to the above, by a duration of more than 15 days per month (more than 180 days a year).
The pathogenesis of such pain is associated both with tension of the pericranial muscles (scalp) and with emotional stress (episodic or chronic, stressful experiences, the presence of latent depression, asthenic conditions, fatigue, working with a long fixed head position, working with a computer, etc.)
Treatment consists in lifestyle changes, the use of sedatives, antidepressants, etc.

PATIENT EXAMINATION WITH THE FIRST TIME HEAVY HEADACHE:
1. To find out the nature of the onset and development of pain, the reasons probably could have caused it
2. Examine the head area for signs of injury.
3. Examine neck stiffness, Kernig and Brudzinsky symptoms (sheath symptoms may indicate infection in the cranial cavity or sheath hematoma)
4. Measure body temperature and do a general blood test (infection)
5. Examine the fundus (edema indicates intracranial hypertension - tumors, hematomas, etc.)
6. Neurological examination to identify focal symptoms of damage to the nervous system.
7. Somatic examination (blood pressure, etc.).
6.3. The final stage. Practical skills are taken into account to control the final level of mastering the material.
At the end of the lesson, home task on the next topic is given. Students are recommended reference literature.

7. Appendixes.
Tasks for the control of eventual level of mastering of educational material.

Task 1. The patient complains of periodic pulsating pain in the right half of the head. Attacks are accompanied by fluctuations in blood pressure, nausea, photophobia. Mother suffers a similar disease. The neurological status: organic damage of the nervous system was not detected. Determine the diagnosis.
The response. Migraine without aura. Dihydroergotamine, caffeine, aspirin.

Task 2. Patient 37 years old, was taken to the neurological department in serious condition with complaints of severe headache. She fell ill yesterday when an attack of pain developed in the right half of the head. After the analgin pill, the pain did not decrease. A history of migraine attacks for 15 years. On examination, the patient has the vomit, stunned, does not immediately answer the question, holds his head with his right hand. Eyeball movements are limited, lack of convergence. Deep reflexes on the arms D = S, knee, Achilles D = S. Rigidity of the occipital muscles was not detected, the Kernig symptom is negative on both sides. Determine the diagnosis. Prescribe treatment.

Task 3. The patient is 25 years old, complains of episodic headache, mainly in the left half of the head, often occur before menstruation. Mother was suffered from similar disease. In neurological status: red persistent dermographism in the upper half of the trunk, slight hyperhidrosis of the palms and feet. Blood pressure 120/80 mm Hg During the attack - severe headache on the left, nausea, vomiting, pallor, which changes hyperemia of the left half of the face, fluctuations in blood pressure. Set a diagnosis. Prescribe treatment.
The response. Migraine without aura (menstrual). Zolmitriptan 2 days before the expected menstruation.

Literature:

Basic:

Auxiliary:

Medicine:

Methodical development is made by K.Tarianyk

Methodical development revised and approved at a meeting of the Department of Nervous Diseases

with additions
(changes)

Head of the Department of Nervous Diseases
Prof. M.Yu. Delva