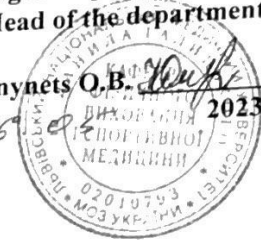


**LVIV NATIONAL MEDICAL UNIVERSITY N.A. DANYLO
HALYTSKY**

Department of Physical Training and Sports Medicine

Approved at the methodical meeting of
the department of Physical training and sports medicine
Head of the department

k.b.s., associate prof. **Kunynets O.B.**
Protocol № 18 from 16.02.2023



GUIDELINES

in the discipline

PHYSICAL REHABILITATION AND SPORTS MEDICINE

for 3th year students

training of specialists of the second (master's) level higher education in the field of
knowledge 22 "Health" specialty 221 "Dentistry" for independent work in
preparation for practical classes

Topic 4 "Physical rehabilitation for diseases and contractures of the
temporomandibular joints. Physical rehabilitation for neuritis of the facial and
trigeminal nerves."

Methodical guidelines are made in accordance with the requirements of the curriculum in the discipline "Physical Rehabilitation and Sports Medicine", compiled to train specialists of the second (master's) level of higher education in the field of knowledge 22 "Health" specialty 221 "Dentistry".

According to the curriculum, the study of physical rehabilitation and sports medicine at the medical faculty is carried out in the 3d year of study.

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Protocol № 18 from 16 of May 2023

1. Scientific and methodological substantiation of the topic.

Temporomandibular joints have a number of anatomical and structural differences from other joints and, depending on the etiology, pathogenesis and reactivity of the body, are accompanied by early and quite pronounced morphological and functional changes. Adjacent tissues are also often involved in the pathological process, which increases the severity of clinical disorders of the structure and function of the joints.

The joints suffer not so much from the disease itself, but from insufficient mobility or their long-term rest, because some clinical forms of the disease begin acutely and end with recovery, others turn into a chronic form, and some are characterized by a recurrent, progressive course and are complicated by joint contractures.

Physiologically necessary means of physical rehabilitation must be prescribed to patients with diseases of the temporomandibular joints as part of complex treatment. At the same time, it is impractical to expect the complete disappearance of pain manifestations in the joints, since they develop degenerative changes after some time, and the absence or insufficiency of movements leads to disorders that cannot be eliminated later (contractures, fibrous ankylosis). Means of physical rehabilitation stimulate blood and lymph circulation, as well as the trophism of the joint apparatus, thereby contributing to slowing down the course of the disease and preventing the development of complications.

The study of this topic will help the future doctor to develop a conscious and responsible attitude to the timely and complete prescription of physical rehabilitation as part of the complex treatment of patients with arthritis, arthrosis and contractures of the temporomandibular joints.

Neuritis is a disease of peripheral nerves that occurs as a result of traumatic damage, infectious diseases (diphtheria, flu, etc.), inflammatory processes, vitamin deficiency (lack of B vitamins), intoxication (alcohol, lead) and metabolic disorders (diabetes).

Neuritis of the facial and trigeminal nerves occurs most often in the practice of a dentist. The nature of functional disorders in facial and trigeminal nerve injuries is determined by their localization and degree of damage. The clinical picture of neuritis consists of sensitivity disorders (pain, temperature, tactile), motor and vegetative disorders. Movement disorders with neuritis are manifested in the development of paresis or paralysis. Peripheral paralysis is sluggish and accompanied by muscle atrophy, decreased muscle tone, trophic changes, disorders of skin sensitivity, and pain when stretching muscles. Physical therapy, massage and physiotherapy play an important role in the complex treatment of this group of patients.

The tasks of complex restorative treatment for neuritis of the facial and trigeminal nerves

are stimulation of regeneration and inhibition of oppressed areas of the nerve; improvement of blood supply and trophic processes in the lesion site, with the aim of preventing the formation of adhesions and scar changes, strengthening of paretic muscles and ligaments, prevention of contractures and stiffness of the joint, restoration of working capacity through the normalization of motor functions and the development of compensatory devices. The methodology and nature of rehabilitation measures is determined by the volume of movement disorders, their localization and the stage of the disease.

The study of this topic will help the future dentist to develop a conscious and responsible attitude to the timely and complete appointment of physical rehabilitation as part of the complex treatment of patients with neuritis of the facial and trigeminal nerves.

2. Learning goal

2.1. The student should know:

- clinical and physiological rationale for prescribing FR tools to patients with temporomandibular joint contractures
- the main approaches and peculiarities of the exercise therapy technique for diseases and contractures of the temporomandibular joints
- periods of exercise therapy
- modes of motor activity of patients
- clinical and physiological justification for the appointment of FR agents for neuritis of the facial and trigeminal nerves
- the main approaches and peculiarities of the exercise therapy technique for neuritis of the facial and trigeminal nerves
- periods of exercise therapy
- modes of motor activity of patients.

2.2. Be able:

- to justify and independently prescribe FR tools as part of the complex treatment of patients with diseases and contractures of the temporomandibular joints
- describe and demonstrate special exercises to the patient
- to justify and independently prescribe FR drugs as part of complex treatment for neuritis of the facial and trigeminal nerves

2.3. Master practical skills:

- to be able to determine the periods of the disease
- to be able to determine movement modes
- self-prescribe FR exercises as part of complex treatment of patients with diseases of the temporomandibular joints
- demonstrate special exercises to the patient
- to be able to determine the periods of the disease
- to be able to determine movement modes
- self-prescribe FR exercises as part of complex treatment for trigeminal neuritis
- self-prescribe exercises as part of complex treatment for facial nerve neuritis
- demonstrate special exercises to the patient.

3. Advice to the student:

Arthritis and arthrosis of the temporomandibular joints

Special tasks of the FR:

- improvement of blood and lymph circulation in the area of the affected joint
- acceleration of resorption of exudate, elimination of inflammatory phenomena in the joint
- activation of regenerative processes and metabolism
- prevention of the development of contracture, ankylosis in the temporomandibular joint
- compensation for disturbances in the function of chewing, swallowing, and speech due to unaffected tissues
- restoration of the impaired function of facial expressions, masticatory muscles, tongue muscles, soft palate, range of motion in the temporomandibular joint.

General tasks of physical rehabilitation:

- increasing the tone of the central nervous system and normalizing the processes of excitation and inhibition in the cerebral cortex.
- normalization of the patient's emotional state.
- restoration of physical capacity, household and professional level.

Means and forms of FR, dosage of physical exertion

The first treatment period - pain in the joint, pronounced exudative manifestations in it, swelling of adjacent tissues, impaired chewing, swallowing, speech, facial expressions.

Movement mode is free.

Physical exercises in the form of therapeutic gymnastics, dosed walking, massage.

Special:

- for mimic muscles of the tongue, soft palate
- ideomotor exercises for chewing muscles
- short-term isometric tension of the chewing muscles
- before performing it, it is desirable to carry out thermal procedures and massage, exercises for the muscles of the neck and shoulder girdle
- repeat each exercise 5-6 times in a row, at least 5 times a day.

General development:

- for small and medium muscle groups of the neck, head, distal parts of the limbs;
- perform each exercise 5-6 times in a row at a slow pace, alternating with breathing exercises 1:1, 1:2;
- the intensity of the general load - within the limits of activation
25–30% of the chronotropic reserve;
- duration – 30 min. every day.

The second treatment period is the presence of residual exudative phenomena in the temporomandibular joint, there is no complete restoration of the disturbed functions of chewing, swallowing, and speech.

The movement mode is free.

Physical exercises in the form of therapeutic gymnastics, massage, mechanotherapy, dosed walking.

Special:

- for mimic muscles of the tongue, soft palate
- active and active-passive exercises for chewing muscles
- before performing it, it is desirable to carry out thermal procedures and massage, exercises

for the muscles of the neck and shoulder girdle

- repeat each exercise 5-6 times in a row, at least 5 times a day.

General development:

- for large muscle groups of the trunk, neck, head, limbs
 - perform each exercise 6-8 times, alternating with breathing exercises 3:1
 - the intensity of the general load - within the limits of activation - 50% chronotropic reserve
- duration – 30–40 min. every day.

The third treatment period - there are no general phenomena in the joint, residual disorders of the maxillofacial functions: chewing, speech, restriction of opening the mouth.

Movement mode – gentle, gentle-training, training.

Physical exercises in the form of therapeutic gymnastics, independent classes, mechanotherapy, dosed walking, massage.

The intensity of the exercises depends on the functional state of the energy supply systems.

Special:

- active for all facial muscles
- with maximum amplitude and maximum static tension and burden (with resistance by the hand of the patient or the methodologist)
- repeat each exercise 10-15 times in a row, at least 5 times a day.

General development:

- for large muscle groups of the trunk, neck, head, limbs
 - perform each exercise 6-8 times, alternating with breathing exercises 4:1
 - the intensity of the general load - within the limits of activation - 50-75% of the chronotropic reserve
- duration – 30–40 min. every day.

Temporomandibular joint contractures

Factors that can contribute to the development of temporomandibular joint contracture:

- myogenic and endogenous (as a result of inflammatory and dystrophic processes)

– ischemic (as a result of long-term pain and reflex muscle tension in the maxillofacial region)

- arthrogenic (as a result of past arthritis and arthrosis of the temporomandibular joint - exchange, as a result of traumatization during night grinding of teeth, gnawing of nuts, presence of a high crown or filling)

- post-traumatic (especially after fractures of the lower jaw in the area of the neck and the angle of the lower jaw and bi-jaw immobilization of fragments.

Features of using special exercises:

- slow opening of the mouth in a sitting position with the head thrown back

- after opening the mouth as much as possible, push the lower jaw forward

- with the head tilted back, pull the lower jaw with your hands, grasping the chin with your thumbs

– circular and lateral movements of the jaw (in the first classes, it is necessary to help the patient with directional movements and holding the chin)

- exercises with resistance by pressure on the chin with the hand of the methodologist during jaw movements, later the patient independently creates such resistance

- ideomotor exercises - reference of the impulse to contraction in a state of rest.

In the first period, special exercises for the masticatory muscles are prescribed for 3–4 days after the operation, repeating each of them 5–10 times at a slow pace with intervals of 1–2 min., avoiding intensification of pain and fatigue of the masticatory muscles. The patient performs a set of these exercises at least 8-10 times a day.

The use of mechanotherapy with the help of various devices and devices can be started 6-8 days after the operation in combination with thermal procedures and massage.

In the second period after the removal of postoperative sutures, the duration and intensity of the functional load on the temporomandibular joint is increased. Opening the mouth, lateral, anterior-posterior and circular movements of the lower jaw are performed with maximum amplitude until pain appears in the joint area. ThG classes include a large number of general development and breathing exercises. In addition to ThG classes, patients continue to independently perform a set of special exercises.

The main task of the third period of ThG is to restore the full range of movements in the temporomandibular joint and prepare the patient for work.

The training methodology during this period is supplemented with special exercises with resistance to movements of the lower jaw in different directions, passive exercises performed by the patient's fingers, and mechanotherapy. At the same time, it is necessary to achieve the full amplitude of movements in the joint. It is very important to monitor the degree of mouth opening every day.

Massage and heat procedures preceding ThG training improve the effectiveness of restorative treatment. Therapeutic massage uses stroking, rubbing, kneading, and vibration techniques. A massage course of 15–20 procedures (daily or every other day).

Physiotherapy treatment for arthrosis of the temporomandibular joint: thermal procedures (paraffin, ozokerite, infrared radiation), electrophoresis (novocaine, iodine, lidase), paraffin therapy (carried out in combination with electrophoresis, application of paraffin before iodine-electrophoresis), ultraphonophoresis of hydrocortisone in continuous mode, iodine electrophoresis in combination with paraffin therapy daily (heat procedure is performed at first).

Physiotherapy treatment for arthritis of the temporomandibular joint: ultraviolet irradiation, electrophoresis of anesthetics, diadynamotherapy, local hypothermia, pulsed ultrasound, ultraphonophoresis, heat treatment (paraffin, ozokerite, infrared irradiation).

Physiotherapy treatment for contractures of the temporomandibular joint: general franklinization, local hypothermia, paraffin therapy, ultraviolet irradiation, ozokerite, ultrasound, ultraphonophoresis, diadynamotherapy, electrophoresis.

Neuritis of the facial nerve

Neuritis of the facial nerve is manifested by peripheral paresis or paralysis of facial muscles of the corresponding half of the face, accompanied by its asymmetry.

Position treatment, massage and therapeutic gymnastics are shown:

- 1) with neuritis of infectious and vascular etiology;
- 2) after surgical removal of tumors that caused compression of the facial nerve;
- 3) after complete rehabilitation of an acute purulent process in the middle ear, which caused neuritis of the facial nerve;
- 4) with the consequences of neuritis caused by an operation for epitympanitis.

These methods are used from the first days of the disease, as well as for residual phenomena and complications (contractures, movements of the commonwealth).

The technique is differentiated according to clinical features and the course of the process.

Tasks of exercise therapy: to improve blood circulation in the face, especially on the side of the lesion, as well as the neck and the entire collar area; restore the impaired function of facial muscles, prevent the development of contractures and movements of the commonwealth, restore correct pronunciation. With severe nerve damage that is difficult to treat, it is necessary to reduce facial expressions to hide facial defects.

In the early period (1–10th day of the disease), positional treatment, massage, and therapeutic gymnastics are used.

Treatment of the position includes the following recommendations:

- sleep on your side (on the affected side);
- within 10–15 min. 3-4 times a day sit with your head bowed side of the lesion, supporting it with the back of the hand (leaning on the elbow); tie a scarf, pulling the muscles from the healthy side to the affected side (from bottom to top), while trying to restore the symmetry of the face.

To eliminate the asymmetry of the face, plastering is performed from the healthy side to the patient. Band-aid tension is directed against the pull of the muscles of the healthy side and is carried out by firmly fixing the other free end of the patch to a special helmet-mask, which is made individually for each patient.

The following conditions are important:

a) correction and hypercorrection of the muscles of the healthy side should be carried out with a certain force so that the antagonistic muscles of the paretic side are sufficiently free in their actions and do not feel the pull of the muscles of the healthy side;

b) fixation of the free end of the plaster must be rigid (even double under the collar), otherwise healthy muscles will not be kept in the correction. Attaching the free end of the patch to the skin of the affected side is ineffective, since healthy muscles in this case will immediately go out of control and pull the skin and proper muscles to their side, returning the former asymmetry of the face;

c) it is necessary to monitor the areas of the skin to which the patch is attached, preventing irritation with massage and moisturizing creams after the position treatment session. Band-aid tensioning to reduce the eye slit (lagophthalmos) is carried out with one or two narrow strips of adhesive plaster, which is attached to the skin of the eyelid in the middle of the eye slit and gently stretched outward-upward, with the free end also attached to the fixed helmet. The force of tension is easily determined by the appearance of double vision with binocular vision.

However, the narrower the eye slit becomes when it is stretched, the easier it closes during involuntary blinking. In such a natural way, the eye is moistened with a tear, which protects the cornea from drying out and ulcers, since in this case the position treatment is aimed not only at the muscle defect, but also at the preservation of the cornea, then, unlike other cases of position treatment, it is also used at night, when it is especially important that the eye is completely closed.

In the remaining cases, positional treatment is recommended to be carried out during the day, when motor functions are most necessary for the patient to perform household, work and medical activities. In addition, treatment of the position during sleep is ineffective and tiring. Band-aid tensioning is carried out in small increments for 30-60 minutes on the first day. 2-3 times a day, mainly during active facial actions (while eating and talking). Then the treatment time increases to 2-3 hours a day.

The *massage* begins with the collar area and neck. After that, a facial massage is performed. The patient sits down with a mirror in his hands, and the massage therapist stands opposite the patient. The massage therapist must see the entire face of the patient, and the latter must perform the exercises recommended during the procedure, observing their accuracy with the help of a mirror. Massage techniques (stroking, rubbing, light kneading, vibration) are performed using a very gentle technique.

In the introductory part of the procedure, relaxation is taught. For clarity, the first procedure begins with showing the relaxation of the hand muscles. After that, they offer to relax the muscles of the healthy half of the face in peace. For better relaxation, it is massaged, barely touching, using continuous vibration with the palm surface of three fingers (II, III and IV) carefully, successively covering the forehead, cheek, chin. The direction of movements is from the middle of the forehead to the parotid region, from the base of the nose and the upper half of the cheeks to the corner of the lower jaw, from the wings of the nose and the lower part of the cheek to the submaxillary lymph nodes. These movements are repeated 1-2 times on the healthy side of the face, and then simultaneously on the affected side (very carefully). In the first days, the massage lasts 5-7 minutes, then it increases to 15-17 minutes. Special techniques of massage include the method of "re-education" (designation of one or another muscle, group of muscles). Technically, this technique is performed as a longitudinal rubbing and warm-up of the belly of the muscle in its various states - relaxed or with varying degrees of tension.

Shaking, small-point vibration, as well as its short-term sensitive (on the border of painful) pressure also belong to re-education techniques. This method is especially often used in the

treatment of the effects of neuritis of the facial nerve. With this pathology, "jewelry"! the use of re-education is carried out from inside the mouth (from the side of the mucous membrane) and requires the instructor to know the location of individual muscle groups (especially the zygomatic muscle, three separate fibers of the quadratus muscle of the upper lip, the laughing muscle, the triangular and cheek muscles). In addition to the re-education of the muscles from the mucous membrane of the mouth, these muscles are similarly affected from the outside, through the skin, capturing those that can only be massaged from the outside - forehead, nose, upper and lower eyelid areas, chin, as well as all neck muscles - front and back.

Technically, these massage techniques are carried out with a low intensity, carefully, without a significant shift of the skin of the face, so as not to increase the depth and length of the main wrinkles and folds - nasolabial, forehead, corner of the eye and mouth, etc. Alternation during one session of regular massage and muscle re-education from the side of the mucous membranes and from the outside has a beneficial effect. It is desirable that the methods of re-education alternate with active differentiated tension of these muscles.

Therapeutic gymnastics is performed in small doses and has a purely selective nature. The main attention in the first stage is given to the muscles of the healthy side:

a) dosed tension and relaxation of individual muscles (for example, zygomatic, laughing muscles) and entire muscle groups (cheek, circular eye muscle);

b) isolated tension (and relaxation) of those muscle groups that provide a certain facial expression (smile, laugh, attention, upset, cry, etc.) or take an active part in the articulation of sounds and their combinations (p, b, m, c, f, in, about);

c) minimally noticeable muscle tension, especially in the muscles surrounding the oral cavity.

All these exercises for the muscles of the healthy side have a preliminary, training nature and are aimed at preparing for effective classes in the main period. The gymnastics class lasts 10–12 minutes. and is repeated twice a day.

In the main period (from the 10th–12th day after the onset of the disease to 2–3 months), as a rule, spontaneous recovery of muscle function begins, and active treatment with special physical exercises and other physical therapy methods is carried out.

Position treatment. Its duration increases to 4–6 hours for one day; alternates with exercise classes and massage. The degree of tension of the plaster to achieve hypercorrection is also increased, with a significant shift to the diseased side to achieve stretching and, thereby,

weakening the strength of healthy muscles. Due to this, they will turn from "rivals" for sick muscles into their "allies". In some cases, adhesive plaster tensioning is carried out for 8–10 hours.

Massage during this period is performed using various methods, depending on the topography of the lesion. So, the muscles innervated by the first branch of the facial nerve (frontal, nasal, circular eye muscle) are massaged in the usual way (described in the massage manual). These are light and medium stroking, rubbing, vibration on biologically active points.

Most of the efforts aimed at the muscles of the face are of a point nature, so that the skin shifts are insignificant and do not stretch the skin of the weakened half of the face.

The main massage is performed from inside the mouth and performs a double function: re-education and purely massage, enhancing blood circulation, trophicity of parietic tissues, etc. All massage movements from inside the mouth are combined with therapeutic exercises.

Therapeutic gymnastics plays a leading role in the recovery period. All exercises at this stage can be divided into several groups:

a) differential tension of individual parietic muscles and muscle groups: frontal, superbrow, circular muscle of the eye (2 bundles), zygomatic, laughing muscle, square muscle of the upper lip, triangular, chin, circular muscle oral cavity (2 bundles);

b) dosed tension (relaxation) of all the named muscles, i.e. training them in stepwise contraction with increasing and decreasing force (both with increasing in one direction and "in a staggered manner", as if by "steps" up and down and with "jumps" both ways);

c) conscious involvement of the listed muscles and muscle groups in various facial expressions – smile, laugh, upset, surprise, etc.;

d) the use of dosed tension during the articulation of various sounds, syllables (especially lip sounds; those that require the participation of different muscle groups).

The listed exercises are performed in front of a mirror under the supervision of an exercise therapy instructor and must be repeated (according to a shortened program) independently (2–3 times during the day).

The following special exercises for facial muscles are recommended:

1. Raise your eyebrows up.
2. To furrow one's eyebrows ("frown").
3. Close your eyes (the sequence of performing this exercise: look down; close your eyes,

holding the eyelid with your fingers on the affected side, and hold the position for a minute); open and close your eyes three times in a row.

4. Smile with your mouth closed.

5. Squint.

6. Lower your head down, inhale, and at the moment of exhalation "snort" (vibrate your lips).

7. Whistle.

8. Expand the nostrils.

9. Raise the upper lip, exposing the upper teeth.

10. Lower the lower lip, exposing the lower teeth.

11. Smile with your mouth open.

12. Extinguish the lit match.

13. Take water in your mouth, close your mouth and rinse, trying not to spill the water.

14. Puff out the cheeks.

15. Move air from one half of the mouth to the other in turn.

16. Lower the corners of the mouth down with the mouth closed.

17. Stick out the tongue and make it narrow.

18. After opening your mouth, move your tongue back and forth.

19. Having opened the mouth, move the tongue to the right, to the left.

20. Push the lips forward with a "tube".

21. Follow the finger moving in a circle with your eyes.

22. Pull in the cheeks with the mouth closed.

23. Lower the upper lip to the lower.

24. Use the tip of the tongue to guide the gums alternately in both directions with the mouth closed, pressing the tongue with varying degrees of effort.

Passive-active exercises for mimic muscles (according to V.V. Makarene, 1992):

- Opening and closing the mouth with fingers supporting the upper and lower lips on the affected side.

- Closing and opening the eyes with the help of the II finger with the support of the IV finger of the upper lip on the affected side.

- Simultaneous removal of the corners of the mouth to the left and right side and grinning of the teeth with support of the upper and lower lip with I and II fingers on the affected side.

- Pulling the closed lips forward while maintaining their symmetry with the help of fingers.

- Sniffing movements with fingers supporting the outer edge of the nostril and the upper lip on the affected side.

- Frowning of the eyebrows with the help of a finger located in the area of the suprabrow arch, until the formation of a clear vertical fold.

- Wrinkling of the forehead (formation of expressive horizontal wrinkle), II finger on the brow arch to actively help moving eyebrows.

- Simultaneous and alternate puffing of the cheeks (lips are pressed with the fingers of one hand so that air does not escape, with the palm of the other press on the healthy cheek so that it does not puff up).

- Alternate and simultaneous lifting of the upper and lower lips with the help of fingers (mouth half-open).

- Imitation of a smile with a finger supporting the corner of the mouth.

Exercises to improve articulation:

- Pronounce the sounds and, in.

- Pronounce the sounds p, f, v, bringing the lower lip under the upper teeth. - Pronounce combinations of sounds: oi, fe, etc.

- Pronounce words containing these sounds by syllables (ko-lo-vo-rot, Fek-la, i-zyum, pu-fik, Var-fo-lo-meï, i-vol-ga, etc.).

Before each exercise, it is necessary to relax the muscles, especially on the healthy side. For this, the patient must limit the amplitude of movement on the healthy side, holding it with his hand. On the affected side, exercises are performed passively with the hand, and when minimal active movements appear - actively with the help of the hand. With the gradual recovery of movements, the same exercises are performed with resistance.

Each exercise is repeated 4–5 times with pauses for rest, eye exercises – 2–3 times. Procedures are carried out 2-3 times a day.

Massage and therapeutic gymnastics are prescribed daily for 2-3 weeks. The duration of the facial massage procedure is 5–12 minutes. In the absence of an effect, therapeutic gymnastics is continued, and the massage is interrupted for 8–10 days, after which a repeat course (20 procedures) is prescribed. If the function of the facial muscles is not completely restored, the technique should be aimed at limiting the facial expression of the healthy half of the face, which helps to mask and compensate for the defect. In case of complications of the disease and the first signs of joint movements, the massage should be very gentle, physical exercises should be temporarily stopped and very carefully resumed (on the 3rd–5th day), in order to suppress synkinesis.

In the residual period (after 3 months), all types of physical therapy used in the main period are used, with an emphasis on therapeutic gymnastics, the task of which is to increase muscle activity to reproduce the maximum symmetry between the healthy and diseased sides of the face. In the same period, the training of muscular efforts in various mimic situations increases. During this period, contractures of facial muscles most often manifest themselves.

Physiotherapy treatment in the form of moderate heat is recommended from the first days of the disease. After 3–4 days, UHF of low thermal intensity, UV irradiation, electrophoresis of medicinal substances, and ultrasound are used to prevent facial muscle contracture. A month after the onset of the disease, mud, paraffin or ozokerite applications are prescribed. Balneotherapy is used in the form of radon or hydrogen sulfide baths.

Neuritis of the trigeminal nerve

For a long time, one of the problems of neurology is the disease of the peripheral nervous system. Moreover, peripheral traumatic neuritis of the trigeminal nerve is the most frequent complication of injuries, surgical interventions and dental manipulations on the jaws and is noted in 85% of observations, and neuritis of the lower and upper alveolar nerves is diagnosed in 15% of patients. The trigeminal nerve is responsible for the sensitivity of the human face. Each of its branches innervates its own part of the face. Yes, the first branch is responsible for the upper part of the face. Thanks to the first branch, the forehead and eyes have sensitivity. The second branch is responsible for the eyes, nostrils, upper lip, cheeks, upper gums. This branch provides innervation of the middle part of the face. The third branch innervates the lower gums, lip, and lower jaw. Also, the third branch is responsible for the sensitivity of the muscles that move the jaw.

Causes of trigeminal neuritis: infections of the oral cavity, dental caries, hypothermia, injuries, less often - pathological conditions on the part of the brain.

Neuritis of the trigeminal nerve of traumatic origin more often develops as a result of injuries to the zone of innervation of the trigeminal nerve, namely with:

skull fractures;

fractures of the upper and lower jaws;

operative interventions on jaw bones;

complex tooth extraction;

incorrect performance of conductor anesthesia;

improper prosthetics;

the presence of foreign bodies that injure the nerve trunk or nerve endings (filling material, implants).

In the complex treatment of trigeminal neuritis, exercise therapy, ThG, massage and ultraviolet irradiation play an important role. Rehabilitation for trigeminal neuritis is selected individually in each specific case. With the elimination of pain syndrome and the appearance of movements in facial muscles, you should start special exercises of the ThG:

- Try to raise the eyebrow of the diseased side, but without raising the eyebrow of the healthy one.

- Look up, to the sides, covering the healthy eye.

- Move the eyebrows, forming a vertical fold between them.

- Close and open eyes.

- Pressing the eyelids with your fingers, turn your eyes up and down, left and right.

- Move your eyes in the same way, without pressing the eyelids.

- Close the healthy eye, blink the affected one.

- Close your eyes.

- Closing one eye, look at the tip of the nose.

- Inflate and retract the nostrils.

- After pinching one nostril, inhale strongly through the other. Inhale through a wide open mouth.

- Having slightly pinched the nose with your fingers, take a strong breath through the mouth.

- Tuck the upper lip under the upper teeth.
- Draw in the cheeks, pressing the lips to the teeth.
- Inflate a healthy cheek.
- Inhale through the nose, exhale through the mouth.
- Chew with the mouth closed on the affected side.
- Pull the lips forward with the tube, squeeze and whistle.
- Strain a mouthful of water through the teeth and back.
- Bite the lip clearly in the middle.
- Pronounce the sounds O, U, B, K, V, F, M.

The use of acupuncture is very effective in the treatment of trigeminal neuritis. The use of acupuncture for traumatic neuritis of the trigeminal nerve is aimed at:

providing anti-inflammatory effect;

removal of edema and swelling of the nerve trunk;

achieving a sensitizing effect;

increasing the general resistance of the body;

inclusion of adaptive and compensatory reactions;

the most complete restoration of the lost conduction of impulses along the nerve trunk.

The duration of treatment and its periodicity in case of traumatic neuritis of the trigeminal nerve is further dictated by the condition of the nerve itself and restoration of sensitivity of the skin of the face and mucous membrane of the mouth. The elimination of paresthesia and pain in the treatment of trigeminal neuritis is accelerated by the use of physical therapy.

A positive therapeutic effect is noted when using vibration mechanical massage, which is indicated in cases where electrophoresis and other methods of physiotherapy do not have positive results. Massage techniques include circular rubbing and gentle continuous vibration for 3-5 minutes. It is recommended to carry out vibration therapy in the places where nerve branches exit the surface of the face, without moving the vibrator from one place to another, because the short-term vibration does not have time to cause a vasodilating effect, as well as an anesthetic effect. With a deep lesion, it is recommended to install a vibrator in the middle of the zygomatic arch. They start with a small vibration amplitude, gradually increasing it. To soften the effect of

vibration, so-called tangential vibrations are used, which the vibrator gives if it is applied to the surface of the body along a tangent line. Vibration massage is performed daily.

When installing the vibrator on the zygomatic arch, a certain numbness sometimes occurs, which, however, soon passes. In such cases, it is recommended to use massage every other day. Vibration massage in the area of the zygomatic arch is contraindicated in severe atherosclerosis of cerebral vessels, stage II-III hypertension, and migraine.

Massage should not increase pain. The procedure is prescribed daily or every other day. The duration of the procedure is 6–7 minutes. 15–20 procedures are prescribed for the course of treatment. The massage course can be repeated after 1.5–2 months.

Physiotherapy treatment: ultraviolet irradiation, diadynamotherapy, electrophoresis of anesthetics, ultrasound, electrosleep, galvanization, thermal procedures (paraffin or ozokerytotreatment), acupuncture, electrostimulation of muscles.

4. Control questions:

1. Clinical and physiological rationale for prescribing FR tools to patients with temporomandibular joint contractures.
2. Basic approaches to FR in diseases and contractures of the temporomandibular joints.
3. Indications for the inclusion of exercise therapy in the complex treatment of patients with jaw contractures.
4. Basic requirements for the method of exercise therapy for jaw contractures.
5. Factors that determine the periodization of exercise therapy for patients with jaw contractures.
6. Periods of application of FR.
7. Modes of motor activity of patients.
8. Physical exercise tasks in the first period of classes; peculiarities of the use of special exercises in the surgical method of treatment of contractures.
9. Objectives and means of exercise therapy in the second and third periods of its use in the treatment of patients with contractures.
10. Peculiarities of using special exercises in the first and second periods of exercise therapy after surgical treatment of temporomandibular joint contractures.
11. Tasks of physical therapy in disorders of the function of the facial nerve that arose as a

result of surgical treatment diseases of the parotid gland

12. Clinico-physiological rationale for prescribing FR tools as part of complex treatment for trigeminal neuritis.

13. Clinico-physiological justification for the appointment of FR means as part of complex treatment for neuritis of the facial nerve. Basic approaches and peculiarities of the technique of conducting FR for neuritis of the facial and trigeminal nerves.

14. Features of the use of special exercises in each of the three periods of therapeutic gymnastics for facial neuritis

15. Periods of exercise therapy for neuritis of the trigeminal and facial nerves.

16. Modes of motor activity of patients.

17. Tasks of physical therapy in disorders of the function of the trigeminal nerve as a result of traumatic nerve damage. Peculiarities of rehabilitation patients with trigeminal neuritis

18. Peculiarities of using special massage techniques for facial neuritis

19. Peculiarities of physiotherapeutic treatment for neuritis of the facial and trigeminal nerves.

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