

**MINISTRY OF HEALTH OF UKRAINE**  
**POLTAVA STATE MEDICAL UNIVERSITY**

Department of general surgery

**METHODICAL INSTRUCTIONS**  
**FOR STUDENT SELF-DIRECTED WORK**  
**WHEN PREPARING FOR AND DURING PRACTICAL CLASS**

<b>Study discipline</b>	<b>General surgery</b>
<b>Module №1</b>	<b>INTRODUCTION TO SURGERY. SURGICAL EMERGENCY CONDITIONS. FUNDAMENTALS OF ANESTHESIOLOGY AND INTENSIVE CARE</b>
<b>Content module 4.</b>	<b>Injury and damage.</b>
<b>Lesson theme №20</b>	Frostbites. Classification. Mechanism of defeat. Clinical signs. First aid and treatment. Electrical injury: the mechanism of electric shock; Clinical signs; diagnostics; first aid and its features..
<b>Years of study</b>	<b><i>III</i></b>
<b>Faculty</b>	<b>International</b>

**Poltava**

<b>Content module 4.</b>	<b>Injury and damage.</b>
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### **1. Relevance of the topic :**

Frostbite and electrocution are quite common . Urbanization , the development of the Far North and the East the problem stress . Increasing the frequency of frostbite during wartime. The urgency of studying the material based on the fact that the acquired knowledge in the department of general surgery are inconclusive, because the process of studying at the university to study this material, either at one of the chairs do not come back . By studying this subject on a par with such sections as diagnosis , treatment of frostbite , electrical injury , the importance of prevention of injuries , what the role of health professionals exceptionally high . Along with the measures on occupational safety, safety performance is essential sanitary and educational work among the population. All of these aspects rely on doctors , mostly physicians and surgeons as they carry a precinct of shops and the health service . Treatment of patients is surgical and intensive care units ( hospitals ) , minor damage - patient.

### **Learning Objectives :**

1. Know causes frostbite ;
2. Know the pathological changes in the tissues and organs of the patient during and after exposure to a traumatic cold agent , electrical current and lightning
3. Know the classification of frostbite , depending on the depth of tissue damage .
4. Know the classification of electric shock .
5. Learn the clinical picture of frostbite , electrical injury .
6. To be able to diagnose frostbite and electrocution , using subjective, objective , laboratory , instrumental (eg , x-ray ) methods.
7. To be able to provide first medical aid .
8. To be able to determine the depth of tissue damage in frostbite .

### **3 . Basic knowledge , skills , habits, necessary for studying the topic ( interdisciplinary integration)**

<b>The names of the preceding disciplines</b>	<b>The skills</b>
1.Anatomiya human histology and embryology	Describe the anatomical and histological features of the structure of external coverings of man.
2.Biological physics	Define and identify the parameters of the physical action of the thermal factor: supports the skin and tissues, the specific heat, thermal conductivity.
3.Mikrobiologiya	Describe the major groups and properties of the bacterial flora that plant grows on the wounds. Pathogens that cause wet gangrene and sepsis.

4. Patophysiology	Pathophysiological responses of tissues in case of damage and inflammation, pathogenesis of cold trauma, electrotrauma.
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**The student must have an idea :**

- The general reaction to electric shock ;
- Local tissue changes - electroburn ;
- Signs of the current;
- For the treatment of patients with electrical shock ;
- Of cold injury ;
- Local clinical signs of frostbite ;
- On the demarcation line .

**The student should know :**

- Clinical manifestations in the defeat of electric ;
- Instrumental studies of electric shock ;
- Periods of frostbite ;
- Degree frostbite on the depth of the damage;
- Common clinical manifestations of frostbite ;
- Treatment of general and local victims with frostbitten ;
- Different kinds of dressings and types of drains ;
- Know the basic classes of antiseptics , medicines and methods and their application.

**The student should be able to:**

- Provide first medical aid to victims with frostbit ;
- Provide first medical aid to victims with electrical current damage ;
- To provide the patient functionally advantageous position in bed ;
- To determine the depth of the lesion frostbitten tissue samples using alcohol ;
- To monitor the victim with electrical current damage ;
- To carry out resuscitation :
- ALV
- Cardiac massage ,
- Defibrillation ;
- To carry out prevention of bedsores ;

**The mastery of the practical skills of students:**

- Demonstrate the methods for determining the depth of lesion in a patient with frostbite ;
- To organize the arrangements for the provision of first aid to the victim with cold injury ;
- Appoint a local conservative treatment for frostbite wounds ;
- To master certain techniques with dressings of patients;
- Provide first aid to the victim at the general cooling of the body;
- To process the "current character ";
- Perform necrectomy ;

- Perform necrotomy ;
- Prepare a set for amputation .

#### 4. Tasks for self-study in preparation for the lesson .

##### 4.1. The list of basic terms , parameters, characteristics, which the student must learn in preparation for the class:

term	definition
Electrical accident (Latin electrotrauma)	Total changes in the organism under the action of electric current.
Mark (signs) of the current	this yellow-storm or whitish spots, areas of necrosis, which are formed on the skin with valikooobraznoy infiltration edges. They are observed in the input and output field current, and where its path are skin folds.
Electrical burn	Local tissue changes in the electric current.
"The figures of lightning"	Local changes in the skin in the defeat of atmospheric electricity
cold injury	Total changes in the body under the influence of low temperatures.
Frostbite (lat congelatio)	Local tissue changes due to low temperature.

##### 4.2 . Theoretical questions for the class :

1. The causes of frostbite , pathological conditions of the patient that contribute to the spread of disease.
- 2 . The pathological changes in tissues and organs of a patient during and after the effect of low temperatures.
- 3 . The pathological changes in tissues and organs of a patient during and after the electric current and lightning.
- 4 . Classification of frostbite and electrocution .
- 5 . The clinical picture of frostbite , electrical injury .
6. Diagnosis of frostbite and electrocution using subjective, objective , laboratory, instrumental and other complementary (eg , x-ray ) methods.
7. Providing first medical aid in frostbite and freezing.
8. What changes of internal organs and tissues occur as a result of electric current to the body .
9. How do you explain predominantly conservative tactics of the local electric shock treatment
10. First aid in case of electrical injury.
11. Determination of the depth of tissue damage in frostbite .
12. The concept of " trench foot ."

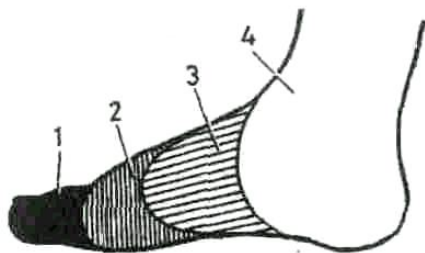
##### 4.3. Practical tasks used in class:

1. Transportation of patients;
- 2 . Samples for determining the depth of lesions in frostbite ;
- 2 . Prevention of tetanus ;
- 3 . Prepare a set for washing the wound and drainage ;
- 4 . Preparation for the implementation of a set of bandages ;
5. Technique of the dressings ( bandages previous removal , removal of necrotic tissue and pus film processing operation field , etc.);
6. Imposing warming dressings ;

7. Specimen collection for bacteriological control ;
8. Performing a warming massage during frostbite of the extremities in the pre-reactive period.
9. Simulate the actions of the medical staff is suspected or the diagnosis of infections in normal body suffered from frostbite .
10. Demonstrate cardiopulmonary resuscitation at the victim with electrical accident (in phantom ) .
11. Correction of disorders of cardiac rhythm at the victim with electrical accident (defibrillation ) .
12. First aid for general cooling of the body.

## 5 . The content of the topic.

**FROST-BITE** is an injury of tissues appearing as a result of local action of low temperature with the development of necrosis & reactive inflammation of tissues. Factors facilitating frost-bite are weather (increased humidity & wind), state of heat exchange in extremities (pressing feet by shoes, skibindings), the decrease of general resistance (loss of blood, shock, cachexia, abuse of alcohol), local disorders in tissues (accompanied disease of arteries, veins, diabetes, trauma of extremity).



*Scheme of pathologic shifts in tissues in frost-bites (1 - zone of necrosis. 2 - zone of deep dystrophic shifts, 3 - zone of vascular disorders, 4 - zone of sound tissues).*

### **Classification:**

#### I. acute affects by cold:

- freezing (injury of internal organs & systems)
- frost-bite (the development of local necrosis with secondary general reaction)

#### 2. according to mechanism of development:

- due to cold air
- contact frost-bites

#### 3. according to the depth of tissues damage:

- I degree - no symptoms of necrosis
- II degree - necrosis of all layers of epithelium
- III degree - necrosis of skin & fatty tissue
- IV degree - necrosis of all tissues of extremity

Course of frost-bites has 2 periods: latent & reactive. During latent period the patient feels cold, paresthesia, later - anesthesia. This period lasts up to 24 hours. Reactive period begins after warming the patient, all the symptoms appear in this period. It may be divided into 2 parts: early (in 5 days) & late (after 5 days).

### **Clinical symptoms of frostbite:**

I degree - moderate hyperemia & swelling, complaints of moderate pains & feeling of burning. Healing in 5-6 days.

II degree expressed hyperemia & swelling, the formation of blisters with limpid liquid, complaints of strong pains, feeling of burning, paresthesia. I- healing in 2-3 weeks.

III degree - expressed hyperemia & swelling, skin is cyanotic, the formation of blisters with hemorrhagic liquid, centers of necrosis, complaints of strong pains, feeling of burning, paresthesia. Healing in 1-2 months.

IV degree - the development of dry or moist gangrene. In absence of infection demarcation forms in 2-3 weeks. The process may finish with mutilation or amputation after the formation of demarcation line.

General phenomena are explained by hypothermia during latent period & toxemia & septicotoxemia - during reactive period.

### **Determination of the depth of destruction through alcohol frostbitten tissue samples**

Through a cotton ball or gauze and ethanol processing is carried out of the affected area. If the patient frostbite 1-2 degree, the trial will be positive. There is a pain and temperature hypersensitivity. If the patient frostbite 3-4 degree, the sample is negative, the patient will not feel any pain that would indicate skin lesions throughout its thickness with the complete defeat of the Malpighian layer and the derivative of the skin, subcutaneous fat.

### **3. First aid for frostbite**

2. To remove the action of frost
3. Transportation of the patient in a warm room ;
4. Wet clothes, shoes must be removed ;
5. to heat frosted parts of body (gradually! In bath with water)
6. To give hot drink .
7. To redress the patient with dry dress
8. Rubbing the frostbitten parts of the body . Feature: the area should be gently massaged with a hand, a woolen cloth, and not with a coarse swab, so that there are no scratches - gates for the penetration of infection ;
9. preparation of the skin with alcohol, after grinding ;
10. The imposition of a dry heat insulating bands ;
11. In pains to use analgetics

### **4. In the clinic :**

- Intravenous and intraarterial administration - infusion of drugs which improve blood flow ;
- Tetanus prophylaxis (injection at a dose of tetanus toxoid 3000 AE and tetanus toxoid .

## 5. First aid for general cooling of the body

1. Transportation of the patient in a warm room ;
2. Impose a patient's body warmers ;
3. Hot tea, coffee ;

### In the clinic :

1. Infusion of warmed saline solution ( atsesol , Disol , Ringer's solution ) ;
2. The elimination of acidosis ( laktasol , sodium bicarbonate ) ;
3. The elimination of hypoxia (oxygen , reopoliglukin ) .

### Treatment in latent period:

1. to heat tissues .
2. the restoration of circulation (spasmolytics - no-spanum, papaverin; antiagregants - aspirin, trental, curantil; rheopolyglucin; heparin)
3. general treatment - analgetics, anti-shock therapy, vaccination against tetanus, antibiotics.

### Treatment in reactive period:

General treatment: in the early. reactive period - restoration of microcirculation, rheologic properties of blood & water-electrolyte balance, intensive therapy of toxemia; in the late period - prophylaxis & treatment of infectious complications - detoxication,

Local treatment: primary toilet of the wound, antiseptic dressings, blisters are cut. Surgical treatment is performed in frost-bites of IV degree, we may perform necrotomy, necrectomy, amputations.

General overcooling has own classification:

1. forms: acute (death comes in 1 hour), subacute (death comes in 1 ~4 hours), slow (death comes in more than 4 hours);
2. stages: compensatory, adynamic, soporous, comatous.

**Compensatory** stage is characterized with excitation, chin, cyanotic lips, pale skin, muscular thrilling, breathlessness, tachycardia, frequent diuresis, sign of "goose leather", rectal temperature 31-35°C .

**Adynamic** stage is characterized with general inhibition, headache, dizziness, weakness, decrease of muscular tonus, bradycardia, rectal temperature 29-31 C

**Soporous** stage is characterized with general inhibition to sopor, disorders of memory, dysarthria, muscular hypertony, widened pupils, bradypnoe, bradycardia, hypotony, sometimes - spontaneous defecation & urination. Rectal temperature 25-29°C . Comatose stage is characterized with loss of consciousness, convulsions, narrowed pupils with absence of corneal & light reflexes, rare respiration (34) or Cheyne-Stokes (tidal) respiration, bradycardia (to 20) rectal temperature < 25°C.

Treatment. In compensatory stage - arresting of cold action. In adynamic stage - additive warming (hot drinks, hot-water bottles, warm bath. In 2 last stages resuscitative & symptomatic therapy. Warming is arrested in body temperature 33-34°C to prevent hyperthermic syndrome. -AH pharmaceutical remedies should be used with great carefulness due to their possible perverted action.

**ELECTROTRAUMA** is an injury of tissues appearing as a result of action of electric current (field). Pathogenesis of this injury is founded on 2 processes - heat action & general biological action of electric current. Current with parameters more than 36 V & 0.1 A is dangerous for men.

Biological action includes the change of the concentration of ions & disorders of polarization. In value of action of current *its* necessary to take into account the way of course through the body - "loop of current" which is especially dangerous when current moves from arm to arm or from arm to foot (heart & brain get into loops that may cause fibrillation of ventricles or paresis of vital centers). If men get to electric arch with temperature 3000-3500°C their bones are smelted with formation of "pearis" in muscles & large vessels one can observe diffuse destroys - "heat consolidations" with following development of renal failure like in crush-syndrome. One can observe "current ducts" - zigzag cavities with charred walls in deep layers of skin & fatty tissue.

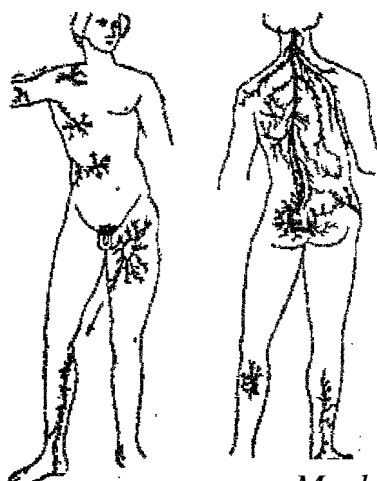
**Local manifestations.** Electric burns correspond to III-IV degrees of thermal burns. Electric burns are classified into 4 degrees. I degree coagulation of epidermis - "marks of current", II degree - exfoliation of epidermis & formation of blisters, III degree - coagulation of the whole layer of derma, IV degree - affection of skin & lower layers (tendons, muscles, vessels, nerves, bones). Maximal changes are observed in places of exit & entrance of course - "marks of current" that is connected with heat action of current. "Mark of current" is hard grey-white or grey-yellow crust with round shape, size from some millimeters to 2-3 cm. small centers of dry necrosis with line or round form (or form of conductor) appear, hyperemia is absent, no pains (due to degeneration of Meisner's bodies in skin), metallization may take place due to splashing small particles of conductor around the place of the injury, electric burns are deep usually, their healing is long. In some cases centers of necrosis may be spread to finger & even throughout the body (tonnelization), hairs may be preserved (difference from thermal burns). In these cases one observes deep necrosis with the injury of muscles & bones. Sometimes electric burns may be complicated with secondary necrosis due to spasm or thrombosis of blood vessels.

Affection by lightning may be direct or indirect (through telephone or radio net). In lightning strike (voltage --  $10^6$  V; current -- 10 A) local shifts are shown like "marks of lightning" - tree-form ramified stripes of hyperemia disappearing in pressing (they are preserved 1-2 days after death).

Especially type of electric trauma is affection due so called step electricity. It appears after fall of high-voltage wire on the ground, earthing of faulty equipment, after lightning strike in a soil. In this situation human feet touch two points of ground with different electric voltage. They consider step is longer potential difference is more. It's dangerous to get into 10m zone around fallen conductor.



General phenomena in electric trauma depend on influence upon central & vegetative nervous centers; inhibition of vital centers, vasomotor disorders up to fibrillation of cardiac ventricles with the following arrest of heart, muscular convulsions up to asphyxia due to tongue spasm of respiratory muscles (laryngeal constrictors, diaphragm). Convulsions may explain patient's impossibility to lose contact with electric conductor. There are several variants of general reaction to electric trauma with obligatory convulsive syndrome: without loss of consciousness, with loss of consciousness, with loss of consciousness, disorder of respiratory rhythm & cardiac activity, without loss of consciousness & arrest of cardiac & respiratory activity.



*Marks of lightning.*

Koeppen divides all phenomena in current strike into 4 ranges:

I range (current to 25mA, 100-500 V, 50Hz) - inconsiderable hypertension, easy convulsions of respiratory muscles, intracranial hypertension, neurological & mental disorders

II range (26-80 mA, 110-500 V) - stable hypertension, convulsions of respiratory muscles, cardiac arrhythmia; in time of action 25 - 30 sec - cardiac standstill with fibrillation.

III range - (0.08-5A, 110-500 V & more) - signs like in II range + fibrillation in 0.1-0,2 sec

IV range - (>5A, > 1000 V) - cardiac & respiratory standstill; in some seconds - death because of severe burns.

In some cases one can observe "affected death" consciousness is absent, pulse is rare, breathing is rare - this state isn't clinical death, all symptoms are reversible. But an vital functions are inhibited they may be revealed only by special equipment. That's why resuscitative measures are carried out in hospitals till the appearance of first true signs of death (livores mortis). Treatment. First aid:

1. to stop the action of current (NB! You may touch the patient before removing a conductor only in special rubber gloves or SUIt because it's dangerous for the person rendering aid)

2. resuscitative measures till restoration of breathing & cardiac beats or appearance of true signs of death (according to some data, defibrination is not recommended because of frequent asystolia)

3. to put aseptic dressings on the places of burns.

4. to transportate the patient to the hospital.

Further treatment is carried out according to general principles of cure of necrosis & terminal states.

## 6. Materials for self-control.

### A Quest for self-control .

#### question:

1. The pathogenesis of frostbite . What characterizes the first ( doreaktivny ) period?
- 2 . What characterizes the second (reactive) period?
- 3 . When changes occur in the body and individual organs for frostbite .
- 4 . What is the contact frostbite .
- 5 . As a share of frostbite on the depth of tissue damage .
6. The goal of treatment for frostbite .
7. List the stages of freezing.
8. Local changes in the cases of electrocution .
9. The clinical course of electrical injury .
- 10 . Electrical accident may give a number of complications , which ones?
11. From which death occurs after electrical accident .
12. First aid for electrical accident .
13. General and local treatment of victims of electrocution .

#### Problem:

1. List the types of dermoplastic .
- 2 . Draw a diagram of the layers of skin and derivatives .
- 3 . What are the factors that promote greater cooling : ambient parameters (humidity, air velocity , temperature , etc.).

### B. Case Studies .

1. What are the periods of frostbite .
- 2 . What are the clinical signs of first-degree frostbite .
- 3 . What is clinically characterized II degree frostbite ?
- 4 . What are the clinical signs of frostbite III degree.
- 5 . What are the changes of internal organs and tissues occur due to the action of electric current on the body ?
6. What is first aid for electrical accident ?
7. The patient with electrical accident which aggravated heart failure and breathing. Demonstrate urgently mechanical ventilation and chest compressions removing the patient from a state of clinical death.

### 6.3 . Tests for self-control

1. What is the typical damage occurs by the action of an electric current ?

A gangrenous limb

B. necrosis of hepatocytes

B. brain edema

G. hyperemia and hemorrhage in the internal organs

D. renal tubular necrosis

- 2 . For late jet period when frostbite is characterized by the development of :

A pain response

- B. Acute renal and hepatic failure
- B. increase in tissue temperature
- G. toxemia
- D. tissue necrosis

3. How is clinically characterized by the degree of frostbite ?

- A. itching
- B. edema fabrics with a bluish tinge marble
- C. hyperemia with cyanotic hue and edema
- D. formation of bubbles
- E. blackening of skin

4. Named clinical signs of frostbite Grade II :

- A limb is cold to the touch after rewarming
- B. severe soft tissue swelling
- V. formation of hemorrhagic blisters
- G. preservation tactile and pain sensitivity
- D. itching

5. Named clinical signs of frostbite III level

- A. hyperemia with cyanotic shade
- B. itching
- C. V. mramornaya leather with purple-tinged cyanotic
- D. hyperemiy with cyanotic hue and edema
- E. development purulent necrotic process at the site of injury

6. Named causes of death in electrocution :

- A. acute paraproctitis
- B. ischemic stroke
- C. Acute renal failure
- F. Cardiac arrest
- G. respiratory arrest

7. What is first aid for electrical accident ?

- A. stopping further action of the current on the victim
- B. stopping bleeding
- C. V. analgesia
- D. resuscitation
- E. transport immobilisation

8. Chem explain the predominantly conservative tactics of the local electric shock treatment ?

- A. severe state of patient
- B. the uncertainty of the edges of the wound

- C. difficulties in surgery
- D. severe changes in the vessel wall over a large area
- E. damage to the nervous system

9 .. The local infectious complications of frostbite include all except :

- A. limfangit , lymphadenitis
- B. tromboflebit
- C. carbuncul
- D. gidradenit
- E. erysipelas

10 . For late jet period when frostbite is characterized by the appearance of :

- A . Painful reaction
- B. mioist limb gangrene
- V. incrising tissue temperature
- G. toxemiya
- D. necrosis tissue

### **Case studies for emerging knowledge**

1. You - an emergency room physician . Came the call. A man lying in the street unconscious. The air temperature of -20 degrees C , the wind . On examination, the patient experiences sudden pallor of fingers , capillary pulse is not detected , the finger covered with a crust of ice.

Your diagnosis and action?

2 . The district hospital to the clinic delivered a patient with frostbitten on both feet in the late period of the jet . Patient's condition is serious. Both feet swollen , there was a rapid cyanosis of skin on them with a gray tint , the sensitivity is completely absent . The line of demarcation - bubbles with purulent content . Hyperemia of the skin on the shins . The body temperature of 38 degrees C.

What is the diagnosis , further tests and treatment policy ?

3 . In the surgical ward enrolled patient complaining of the lack of sensitivity to the toes , swelling them . When collecting history was that on the eve of the cold for a long time waiting for public transport. Frozen toes . House warming feet in the hot tub , but the sensitivity was not restored . On examination : swollen feet , marked cyanosis of the fingers , the lack of sensitivity in them , capillary sample is negative .

What is your diagnosis and treatment interventions ?

4 . A patient with frostbite feet Grade III-IV on the fifth day after the injury began to complain of weakness, fever up to 39 ° C, cough, shortness of breath. Both feet swollen , the skin hyperemia legs .

What complications can develop in a patient ? That further tests to confirm the diagnosis you will spend ? Your medical tactics ?

5 . You arrived at the Events as an emergency room physician . In the words of those present, a few minutes ago, the victim has been exposed to the action of an electric current. Lost consciousness. Had seizures . Friends at work turned off the power supply . The patient lies on the floor. Breath away, pulse is not detected , skin cyanotic , pupils are wide, do not react to light .

What is your diagnosis? Your actions ?

6. In the surgical ward admissions , which two days ago was the right hand electrical injury IV degree. On examination : hand, forearm and shoulder dramatically swollen , hard on palpation. The feeling in his hands weakened.

What emergency surgery you should do ?

7. Patient A. , 43, delivered to the hospital after a long stay in the mountains in winter . On examination : complaints of pain in both feet and numbness . Objectively: skin still pale, cold , its sensitivity is reduced, ripple on peripheral arteries sharply weakened. What first aid should be provided to the victim ?

8. Surgeon - Intern hospitalized patient who got lost in the woods during a ski trip . The patient in mind , but slowed down , the body temperature lowered to 32 degrees C. The senior surgeon colleague advised him next to drug therapy as soon as possible to warm the patient. How can this be done?

9. In the process of treating the patient S., 36 years old, hospitalized three days ago with deep frostbitten right foot , the doctor noticed increasing edema and cyanosis of the latter, which were accompanied by signs of intoxication rise . Head to a colleague recommended surgery. What kind of surgery was discussed ?

10 . Patient Z. , 29, on the 2nd day after the frostbite of lower limb complains of feeling of fullness in the right foot and the lower third of the leg . On examination revealed marked swelling of the legs , muscle density . Stated increase in body temperature to 38 degrees C, heart rate - 100 beats / min. Your actions as a PCP?

11. While working in the sawmill workers heard the cry of a colleague who repaired the motor. At the scene found the electrician S., 29 years old, who clung frantically unintentionally disconnected the device . What you need to do first when rendering first aid to the victim ?

12. Patient S., 52 years old, on the 2nd week of treatment for electric shock from a wound in the upper third of the right shoulder revealed a pulsating outflow bright red blood. The patient pale, complains of dizziness, thready pulse . BP 80/60 mm Hg What complication can be assumed in this case?

13. After a passerby resorted off current, the victim V. , 24, is not revealed signs of life. Started cardiac massage and artificial respiration and called an ambulance . It took 20 minutes, but the medical team did not come. How long should resuscitate the victim ?

14. On admission to the hospital affected by the action of electric current surgeon found on the palm of his right hand pale gray spot with a diameter of 4 mm. The general condition of the victim is satisfactory , pulse 80 beats / min. , AO 110/80 mm Hg The victim refused to go to the hospital . What should the doctor do ?

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### **General:**

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**8. The distribution points are awarded to students:**

At mastering topic number 20 to content module 4 for training activities for students rated a 4-point scale (traditional) scale, which is then converted into points as follows:

<b>rating</b>	<b>Points</b>
5 (excellent)	5
4 (good)	4
3 (satisfactory)	3
2 (poor)	0

Guidelines prepared

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