

## **Topic 1.16 Thermal lesions. Poisoning. Diseases**

## **Question 1 Hypothermia**

**Call an ambulance if this has not been done before**

- remove wet clothes; protect from wind and heat loss (cover, wrap);
- give a horizontal position;
- avoid sudden movements and excessive activity;
- constant monitoring of body temperature;
- Constantly monitoring your heart rate.

There is breathing, speech contact, pulse

YES

NO

Body temperature

- attract an assistant;
- cardiopulmonary resuscitation;
- continue to provide warmth during CPR
- do not stop CPR until ambulance arrives

**Severe hypothermia (less than 30). There is no consciousness. Expressed.**

**Moderate hypothermia (34-30). No shaking. Consciousness is confused. Muscle stiffness**

- Active external warming.
- Hot sweet drink.
- Alcohol as a pain reliever and sedative only for adults, no more than 50 ml.
- Do not give again.

**Moderate hypothermia (34-30). No shaking. Consciousness is confused. Muscle stiffness**

- Active external warming of the torso only.
- Hot sweet drink with a clear mind.
- Do not offer alcohol. Thermal insulating bandages for the limb.

Transfer carefully. Change clothes. Control of breathing and pulse. Readiness for resuscitation.

**It is extremely important, before starting first aid, to determine the severity of hypothermia and decide whether there is a need to call an ambulance.**

### **Classification of stages of hypothermia depending on from clinical manifestations**

<b>Stage</b>	<b>External manifestations</b>
<b>Dynamic</b>	<p>Pale skin, goose bumps. Severe muscle tremors.</p> <p>Ability to move independently. Lethargy and drowsiness, slow speech, slow reaction to stimuli. Rapid breathing and heart rate.</p>
<b>Stuporous</b>	<p>Paleness of the skin.</p> <p>Ears, nose, cheeks, limbs become bluish in color.</p> <p>Associated frostbite of 1 – 2 degrees. No muscle tremors. Muscle stiffness, up to the inability to straighten the limb. Boxer pose. Superficial coma.</p> <p>The pupils are moderately dilated, the reaction to light is positive. Reaction only to strong painful stimuli. Breathing slows down and becomes shallow. Decrease in heart rate.</p>
<b>Convulsive</b>	<p>Pale blue skin. Associated frostbite of 3 – 4 degrees of protruding parts of the body. Severe muscle rigor.</p> <p>Deep coma. The pupils are maximally dilated.</p> <p>The reaction to light is absent or extremely weak. There is no reaction to any stimuli. Attacks of generalized convulsions are repeated every 15 to 30 minutes.</p> <p>Lack of rhythmic breathing. Reducing heart rate to 20 - 30 per minute.</p> <p>Rhythm disturbances. At 20 degrees, breathing and heartbeat usually stop.</p>

The stages of clinical manifestations of hypothermia do not always correspond to certain temperature limits. Therefore, there is a secondary clinically informative classification of degrees of hypothermia depending on body temperature

**Degrees of hypothermia depending on body temperature**

Degree	Body temperature	Reversibility
Light	32-33 <sup>0</sup> C	Reversible
Moderate	28-32 <sup>0</sup> C	
Heavy	24-28 <sup>0</sup> C	
Extremely severe	Less than 24 <sup>0</sup> C	Irreversible

## **Indications for hospitalization for hypothermia:**

- **stuporous or convulsive stage of general hypothermia;**
- **poor response to first aid even in the dynamic stage of hypothermia;**
- **concomitant frostbite of body parts of III and IV degrees;**
- **concomitant frostbite of parts of the body I and II degrees in combination with vascular diseases of the lower extremities or diabetes mellitus.**

**After assessing the severity of the victim and calling an ambulance, the patient should be given first aid.**

### **Algorithm for action in case of hypothermia:**

- 1. Stop the victim's contact with the cold environment: take him to a warm room, take off frozen and wet clothes and change into clean, dry clothes.**
- 2. Offer the victim any warm drink (tea, coffee, broth). It is important that the temperature of the drink does not exceed body temperature by more than 20 - 30 degrees, otherwise the risk of burns to the mucous membranes of the oral cavity, burns of the esophagus and stomach increases.**
- 3. Wrap the patient in any thermal insulating material. The most effective in this case will be special blankets made of thick foil. In their absence, you can use cotton blankets.**
- 4. Avoid excessive movement of the victim from place to place, since unnecessary movements can cause pain and contribute to the appearance of heart rhythm disturbances.**
- 5. Body massage in the form of light rubbing promotes heat generation through friction, and also accelerates the restoration processes of the skin and subcutaneous tissue. However, rough massage can provoke the above-mentioned heart rhythm disturbances.**

**6. Warm baths bring a good therapeutic effect. The water temperature at the beginning of the procedure should be equal to body temperature or exceed it by 2-3 degrees. Then you should slowly increase the water temperature. The temperature rise should not exceed 10-12 degrees per hour. It is important to monitor the patient's condition during active warming in a warm bath, since with rapid warming there is a possibility of a sharp drop in blood pressure up to a state of shock.**

**Features of hypothermia in children Infants and very young children are not capable of chills. Chills are the body's way of retaining heat, and if the body is not mature enough, the body's temperature will drop faster. Signs of hypothermia in children A child who is very cold may appear extremely healthy as his face, arms and legs will be bright pink.**

**With severe hypothermia, the child's skin acquires a grayish tint, lips become pale or blue.**

**The child becomes quiet, sleepy and weak.**

**Does not show interest in what is happening around him, may be disoriented.**

**Impaired consciousness manifests itself quite quickly.**

## **ATTENTION**

**Do not use any sources of artificial heat such as heating pads or electric blankets. Don't be tempted to warm up your baby too quickly. Do not give a child with hypothermia anything to drink or eat.**



## **Question 2 Overheating**

**Call emergency medical help immediately. If the victim is unconscious, move him to a cool place and provide access to fresh air.**

**Lay down, slightly raising your legs with the help of a roll of clothing placed under your knees, undress or unfasten the clothes on it.**

**To prevent his tongue from sticking, you can place a bolster under his shoulders or provide a stable lateral position.**

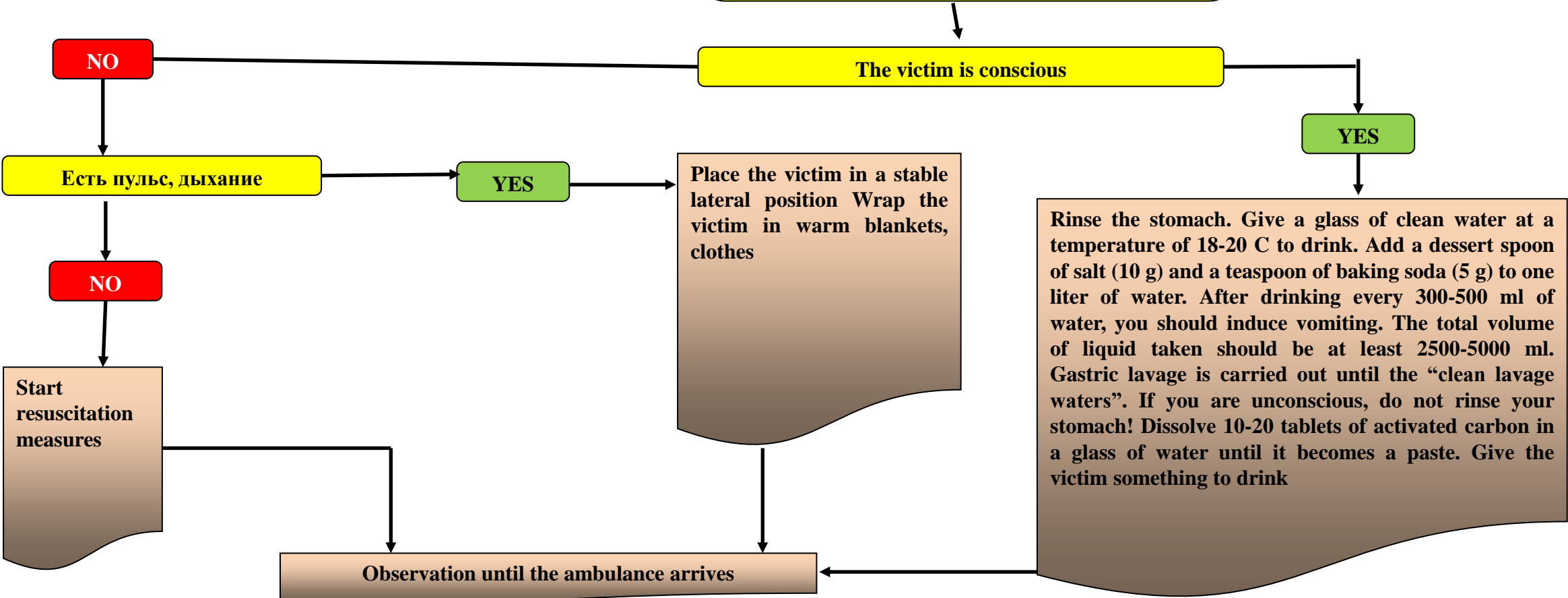
**Place a towel soaked in cold water or an ice pack on your head. Monitor your pulse and breathing until emergency medical services arrive.**

**Be prepared to carry out resuscitation measures. If the person is conscious, he can be given strong iced tea or slightly salted cold water.**

**If possible, to reduce body temperature, wrap the victim in a wet sheet or place a damp cloth on the area of the groin folds or popliteal fossae. Try to create air movement so that moisture evaporates.**

## **Question 3 Poisoning**

Call an ambulance immediately. Find out the circumstances of the incident (in case of drug poisoning, keep and present the drug packaging to the arriving medical professional).



**Basic principles of first aid for any poisoning**

**1. Calling an ambulance.**

**2. Prevention of further poison entering the body:**

- remove the victim from the contaminated area in case of inhalation poisoning;
- remove clothes soaked in poison;
- if possible, give activated carbon (at least 30 g) for enteral poisoning.

**3. Removal of unabsorbed poison:**

- wash the skin and eyes of the victim if poison enters percutaneously;
- rinse the stomach by inducing vomiting when poison enters the stomach (UNLESS CONTRAINDICATIONS);
- re-give activated carbon or other sorbents.

**4. Antidote therapy (at this stage, only the use of ethyl alcohol is possible for methanol poisoning).**

**5. General first aid measures:**

- give the correct transport position;
- provide access to fresh air;
- if necessary, cardiopulmonary resuscitation;
- monitoring consciousness, breathing and pulse until emergency medical assistance arrives.

## **ATTENTION**

**Inducing vomiting is contraindicated when: disturbance of consciousness; poisoning with acids, alkalis, ammonia, gasoline. Rinse eyes for at least 15 minutes**

### **Features of first aid for various poisonings**

#### **A. Hydrocarbon poisoning (gasoline, kerosene, oil, acetylene, etc.)**

- 1. Do not smoke when providing assistance or being near the victim.**
- 2. Do not use sparking devices, do not use vehicles with a spark-burning internal combustion engine. Eliminate the source of open flame.**
- 3. DO NOT ATTEMPT TO VOMIT.**
- 4. Place the victim in a “half-sitting” position; in the absence of consciousness, a stable lateral position**
- 5. Open windows and doors in the premises and ensure cross ventilation.**
- 6. Avoid hypothermia of the victim.**

## **ATTENTION**

**If the above substances enter the stomach, it is strictly forbidden to give milk, alcohol or other fat-dissolving substances.**

### **B. Carbon monoxide poisoning.**

- 1. Removal from the danger zone to fresh air.**
- 2. Place the victim in a sitting position.**
- 3. Constant control of consciousness, breathing, blood circulation.**
- 4. Readiness to perform cardiopulmonary resuscitation.**
- 5. In the absence of breathing and pulse - cardiopulmonary resuscitation.**

## **C. Poisoning with alcohol, alcohol substitutes, methyl alcohol**

- 1. Give a stable position on your side.**
- 2. Clear the oral cavity of vomit.**
- 3. Control of breathing and pulse.**
- 4. In the absence of breathing and pulse - cardiopulmonary resuscitation.**
- 5. In case of poisoning with methyl alcohol:**
  - If the victim is conscious: rinse the stomach with water; induce vomiting; give an antidote (100.0 ML 40% ETHYL ALCOHOL); Observe until emergency medical services arrive. If the victim is unconscious: call emergency medical help; give a stable lateral position; breathing and pulse control; if necessary, cardiopulmonary resuscitation.**

### **ATTENTION**

**In case of acute alcohol poisoning, the use of ammonia is inappropriate. It causes a sharp stimulation of the central nervous system and depression of the respiratory center. Possible toxic pulmonary edema.**



## **Question 3 Acute diseases**

## **A. Fainting**

**Fainting can occur under conditions of acute or chronic stress, being in a stuffy room, standing for a long time, psycho-emotional stress, overwork, etc.**

### **First aid:**

- **make sure it is not cardiac arrest;**
- **in the absence of breathing and pulse - immediate resuscitation;**
- **tilt the victim's head back (airway patency);**
- **unbutton tight clothing (especially if it puts pressure on the neck) and provide access to fresh air;**
- **raise the victim's legs by 30-45 cm;**
- **Avoid using ammonia.**

## **ATTENTION**

**Call emergency medical help immediately if:**

- **previously had fainting;**
- **consciousness is not restored within 5 minutes;**
- **age over 40 years.**

## **B. Stroke**

**It is necessary to take into account that there is no more than 3 hours (maximum 5) to recognize (determine) a stroke and deliver a sick person to a hospital.**

**It is during this period from the moment when the first signs of the disease appear that irreversible consequences can be avoided. Conventionally, the manifestations of this disease can be divided into 2 groups: symptoms that are noticeable to the victim himself and signs that can only be recognized from the outside.**

**Upon inspection: The man is lying down. Sometimes he tries to get up. May be unconscious. The patient does not understand speech addressed to him. His own speech is meaningless. Often he can't say anything. The skin is purple and moist. The eyes are red. Breathing is frequent (sometimes reduced to the point of stopping). The pupils are dilated, often of different widths, “floating” eyeballs. Cramps or involuntary movement of limbs. There may be facial asymmetry, drooling, nausea, vomiting.**

### **First aid:**

- urgently call an ambulance;**
- place the patient in a stable lateral position (in case of vomiting, drooling) with the upper half of the body elevated;**
- ensure patency of the upper respiratory tract;**
- monitor pulse, breathing, be prepared to begin resuscitation measures.**

<b>Signs noticed by the victim on one's own</b>	<b>Symptoms noticeable from the outside</b>
<b>Sudden onset of nausea (including vomiting), headache, dizziness</b>	<b>The patient is unable to smile fully. The victim's smile is twisted to one side.</b>
<b>Unexpected loss of control over what is happening, disorientation in space and time. The patient may not understand where he is. Speech is confused and incoherent</b>	<b>If you ask the patient to say a few simple sentences, his confused and incoherent speech becomes noticeable. Often a person in such a state does not pronounce endings, confuses syllables in words, and simply cannot express a thought.</b>
<b>Double vision, partial loss of vision, or simply blurry vision of objects.</b>	<b>If you invite the patient to stick out his tongue, it becomes noticeable that it, like the smile, is somewhat curved to one side.</b>
<b>A sudden feeling of numbness in one part of the body, usually a limb or face.</b>	<b>When asked to raise both hands up, the victim will be able to hold only one hand, the second will spontaneously drop and not obey.</b>
<p data-bbox="529 1039 851 1082" style="text-align: center;"><b>ATTENTION</b></p> <p data-bbox="117 1105 1258 1219"><b>If you observe any of the signs described above, you should immediately consult a doctor.</b></p>	<p data-bbox="1696 1045 2018 1088" style="text-align: center;"><b>ATTENTION</b></p> <p data-bbox="1289 1110 2430 1296"><b>One of the described symptoms is enough to make sure that the victim is developing a stroke and urgently needs to call an ambulance.</b></p>

## **C. Bronchial asthma**

### **Signs of suffocation:**

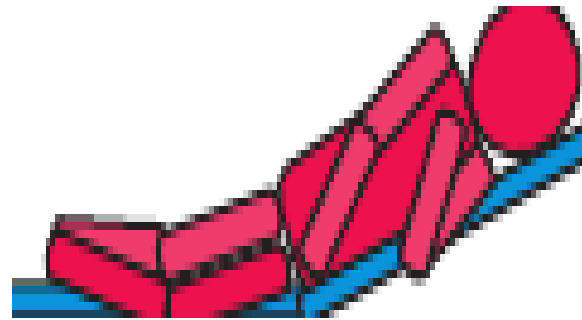
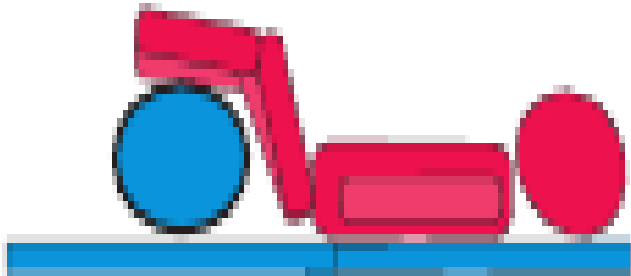
- **attacks of suffocation, shortness of breath or cough, more often at night;**
- **noisy, wheezing breathing;**
- **intermittent speech, often limited to individual phrases;**
- **cyanosis of the face, neck, lips;**
- **forced semi-sitting position.**

### **First aid:**

- **call an ambulance;**
- **try to calm the patient;**
- **provide a flow of fresh air;**
- **give the patient a comfortable semi-sitting position;**
- **warm the patient's feet by all available means;**
- **control consciousness and breathing;**
- **in case of loss of consciousness – stable lateral position;**
- **in the absence of breathing - cardiopulmonary resuscitation**

## ATTENTION

Remember that patients with bronchial asthma usually carry a medication inhaler with them. Help the patient find it and take the medicine.



## **First aid:**

- **call an ambulance;**
- **give the victim a position that is most comfortable for the patient: either sit him down (it is difficult to breathe in a lying position),**
- **or put him in an “anti-shock” position if the patient is pale, experiences weakness, dizziness**
- **provide air access, unbutton tight clothing;**
- **do not leave the patient alone, monitor the general condition, breathing, pulse);**
- **be prepared to carry out resuscitation measures.**

## **ATTENTION**

**Don't forget to find out if the patient has nitroglycerin. Give 1 tablet under the tongue. If pain persists within 5 minutes, repeat.**

## **E. Convulsive seizures. Epilepsy.**

**A seizure in epilepsy begins with a prolonged muscle contraction, turning into rhythmic muscle twitching. The face is distorted and blue. Often the victim bites his tongue. Tachycardia, pupils are dilated, there is no reaction of the pupils to light. Sweating increases. Then muscle relaxation occurs, but consciousness remains disturbed. The return of consciousness occurs gradually with elements of disorientation. Usually after a seizure there is a severe headache and drowsiness. The patient does not remember the seizure itself. The seizure can last from several minutes to half an hour. In approximately 2-3% of cases of epilepsy, status epilepticus develops, which is characterized by a series of seizures (5-6 per hour or more), in the intervals between which consciousness is not restored.**

### **First aid:**

- call an ambulance, ACCURATELY DESCRIBING THE PICTURE OF THE ATTACK;**
- gently holding the victim's head during convulsions (prevention of traumatic brain injury);**
- you cannot roughly restrain the patient and unclench the jaws with any metal objects (dental injuries are more common than tongue biting);**
- provide access to fresh air, unbutton tight clothing;**
- after an attack, give the patient a stable lateral position**



