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## Medical Foundations of Emergencies and Life Safety

### Abstract

Recent years, the issue of ensuring human safety has become acute. This is because in recent times, when science and technology have developed rapidly, the number of accidents and natural disasters in industry, transport and other areas has increased significantly. One of the main tasks of the medical foundations of emergency situations and the safety of life is to ensure safety by searching for new directions for ensuring the safety of people in various conditions of life. In modern times, people suffer most from the dangers created by themselves, and not from the one-time losses of scientific research.

Medical events in emergency situations are such a situation that, as a result of the emergence of a source, the normal living and working conditions of people in a certain area are disrupted, there is a threat of the spread of infectious diseases, and there is a threat of the destruction of agricultural animals and plants. Infectious diseases have accompanied man since the moment he separated from the animal world and formed as a species. As society was formed and the social lifestyle of man developed, many infections became widespread.

Infectious diseases spread continuously among people. Their increase leads to economic losses and disruption of the epidemic situation in the country. It is known that microorganisms have the ability to reproduce very quickly, they have a high ability to change, adapt, and are resistant to external pressures. The widespread spread of infectious diseases at all times has resulted in the death of millions of people, and has also been the main reason for the shortening of human life. Infectious diseases are a large group of human diseases caused by pathogenic viruses, bacteria, and protozoa. There are a high level of technogenic hazards in the Republic of Azerbaijan, which are considered the main sources of various types of emergencies.

**Keywords:** *medicine, emergencies, health, human, safety, life*

### Introduction

Our daily lives, every person, regardless of their profession and level of knowledge, should be able to provide first aid. When emergencies occur, saving people often depends on timely, purposeful first aid.

*Emergency is a situation* — that has arisen in a certain area as a result of military operations, accidents, natural or other disasters that may cause or have caused human casualties, damage to human health or the environment, significant material losses, and disruption of people's living conditions.

Some cases, the lack of necessary information leads to life-threatening complications for the victims. It is important to know that timely and correctly provided first aid slows down the development of the disease and prevents future complications. After providing first aid to the victim, he should be taken to the nearest medical facility.

First aid is a non-drug application performed at the scene of an accident or life-threatening situation, without seeking medical assistance, with the available forces and means, in order to save life or prevent further deterioration of the situation until medical help is provided. At the same time, first aid is provided on the battlefield, at the site of injury, and by the injured person himself, his companions, as well as by medical personnel. Saving the lives of injured people, alleviating their suffering, and restoring their ability to work depend on the speed and accuracy of the first aid provided to them. Unlike medical care, first aid can be provided by any person. For certain

categories of persons, providing first aid is considered a duty in accordance with relevant laws and regulations. If a witness to the incident does not know what to do at the scene or is unable to provide the victim (patient) with necessary assistance, he must call for help and then call the emergency medical service.

### **Research**

During natural disasters, people experience changes in emotions, thoughts and behavior, loss of appetite, anxiety, wakefulness, suspicion, depression (depression), irritability, crying, feeling of powerlessness, headaches, sleeplessness, distrust of those who help, refusal to accept help, etc. In order to prevent such situations from occurring, it is important for people to be educated and prepared in advance for various emergency situations.

Person who falls into a disaster zone must control himself, be restrained and competent, and set an example for those around him with his personal activities so that there is no panic and panic. The first aid provided to a person who has suffered any injury (crushing, fracture, burn, etc.) or suddenly becomes ill is of great importance in saving his life and restoring his health. In cases of accidents and sudden illness that can occur at any time and place, there may not be a medical worker nearby, and in this case, other people are obliged to provide first aid to the injured. Loss of consciousness and incompetence can further aggravate the condition of the injured. In some cases (for example, shock, fainting, severe bleeding, etc.), if first aid is not provided within a few minutes, the injured person may lose his life. In this case, even the called "ambulance" service may not be able to save him. In such cases, it is the first medical aid provided that can save not only the health of the injured person, but also his life.

The urgent measures that must be taken first can be divided into three main groups:

First, the immediate elimination of the effects of external damaging factors on the victim (electric current, low or high temperature, compression under severe pressure, etc.) and their removal from unfavorable conditions (removal from water, burning or gas-filled places) (Taylor et al., 2024, pp. 23-94).

Second, depending on the type and nature of the trauma received, the provision of immediate medical assistance (stopping bleeding, artificial respiration, closed heart massage, dressing wounds, etc.).

Third, the delivery of the victim to the nearest medical facility as soon as possible. In this case, it is necessary to act very carefully or call an ambulance to the scene.

When providing first aid, it is necessary to carefully examine the scene, assess the conditions and ensure that the person providing assistance is not exposed to harmful effects (electric current, avalanche, etc.). The victim should be carefully removed from the unfavorable conditions in which he fell, so that he does not receive additional trauma and does not aggravate his condition. He should be laid down in a quiet place, his waist belt and collar should be loosened, he should be covered and medical help should be called. Thus, during accidents or natural disasters that occur in our daily lives, people face life-threatening situations. Timely and correctly provided first aid can save many lives.

Medical measures provided to people during emergencies are carried out as follows:

1. Medical measures for the protection of the population — include work to prevent or mitigate injuries to people, provide timely assistance to victims and treat them, and ensure epidemiological safety in regions where emergencies have occurred.

For this purpose:

- plan the activities of all available health authorities and means, regardless of their field subordination;
- open a sufficient number of medical institutions in the event of an emergency;
- use medical preventive measures in a timely manner;
- monitor food and water supplies;
- timely create qualified medical teams and prepare them for action;
- create reserves of medical protective equipment, medical and special equipment and technical resources;

- train medical workers and teach medical and sanitary knowledge to the entire population.

2. Protection against biological agents consists of timely detection of the threat or fact of infection, the type and scale of infection, as well as determination of administrative-economic, regime-restrictive and special medical measures.

For protection against biological agents:

- timely use of collective and individual protective equipment;
- establishment of quarantine and observation regimes;
- neutralization of the source of infection;
- carrying out urgent and special (specific) prophylaxis;
- it is necessary to achieve compliance with the anti-epidemic regime by national economy facilities, medical institutions and the population.

3. Monitoring and control of the environment, food products, water is carried out in the following ways:

- by creating in advance a nationwide and field monitoring and laboratory control network and maintaining it in constant readiness by involving sanitary-epidemiological stations, veterinary, agrochemical and facility laboratories, institutions of the State Hydrometeorological Committee, radiation and chemical observation posts;

- collecting, analyzing and disseminating information on the state of the environment, as well as on the contamination of food products and food raw materials, fodder, water with radioactive, chemical and bacteriological (biological) substances.

4. The ability to use protective methods and means, to provide first aid to the injured, to actively participate in rescue and other urgent work is taught to employees in enterprises. Administrations and organizations, as well as in residential areas, in accordance with the nature of the real danger that may arise. At this time, all conditions are created for the population to receive necessary advice and recommendations. The rules of action and behavior in the event of possible emergencies in places are brought to the attention of the entire population in advance through the mass media or by distributing special memory booklets.

Priority goals of medical care:

1. Eliminate life-threatening situations.
2. Ensure the continuation of vital functions.
3. Prevent the deterioration of the condition of the sick or injured person.
4. Facilitate rapprochement.

First aid is the most important stage of assistance provided to the victim.

It is clear that during an incident, no medical transport with medical personnel will be able to appear at the scene at that moment and provide medical assistance. At the first moment of an accident, first aid is provided to the victim at the scene by the victim himself, the surviving participant in the incident, a random witness to the incident, and then rescuers, firefighters and emergency medical workers arriving at the scene (Scopus Program Coverage Guidelines, 2024, pp. 5-9).

Therefore, teaching the basics of first aid to broad segments of the population should be the main goal, and they should be trained in accordance with the educational standards and training protocols adopted in our country. The provision of first aid should be unified for all state structures. First aid should meet modern requirements, comply with standards, be constantly developed, and be based on relevant legal documents.

*First aid depending on the type of injury.* First aid measures vary depending on the type of injury. The main types of injuries in emergency situations are: traumas (injuries), thermal burns, radiation injuries, acute chemical poisoning, psycho-emotional disorders, epidemics, combined injuries (mechanical-thermal, radiation-thermal, radiation-mechanical, etc.), accidents (drowning, sunstroke, stacking, snakebites, household poisoning). They can be conditionally divided into two profiles: surgical and therapeutic.

The following traumas belong to the surgical profile: mechanical injuries, prolonged compression syndrome, bone fractures, external bleeding, burns, etc. The most common injuries

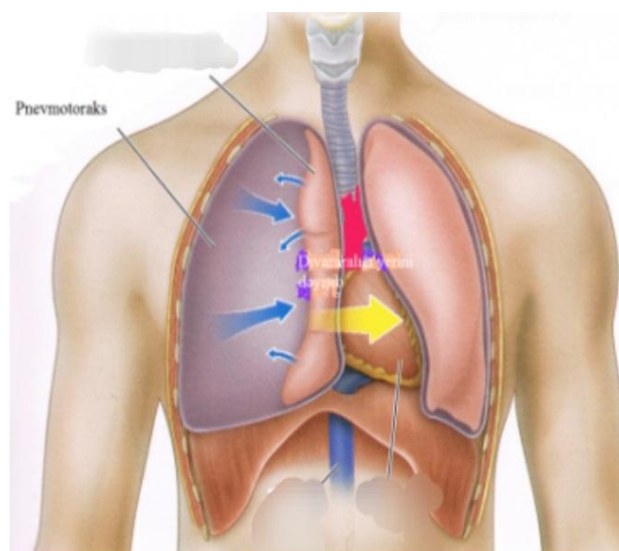
with a therapeutic profile include radiation injuries, acute poisoning, psycho-emotional disorders and mass infectious diseases, as well as exacerbations of chronic diseases.

### **First Aid for Tension Pneumothorax**

Tension pneumothorax requires immediate intervention. If appropriate assistance is not provided, the victim's condition may worsen. Because the damaged lung cannot perform its function and breathing becomes even more difficult. Focus on the respiratory problem:

- in such cases, immediately activate the emergency medical service;
- give oxygen via mask to all victims;
- take measures to reduce the likelihood of shock;
- lay the victim on the injured side so that adequate breathing can be achieved on the healthy side.

All victims with pneumothorax should be urgently taken to the hospital.



**Figure 1.** Tension pneumothorax

### **Rib Fractures**

Ribs are broken as a result of a traumatic force. Simple rib fractures are the most common result of severe chest trauma. Rib fractures are important in terms of damage to organs located deeper than them (the occurrence of pneumothorax), or to the spleen and liver (in the case of fractures of the 9th, 10th and 11th ribs). Tenderness, crepitus (crackling sound), hemorrhage and local muscle tension occur in the area of the fracture. Left-sided rib fractures are accompanied by spleen damage in 20 % of cases, right-sided rib fractures in 10 % of cases with liver damage (Falagas et al., 2007, pp. 338-342).

#### **Medical Care**

- Pain control! Pain persists for a long time (1–2 weeks).
- Ensuring deep breathing. After the appointment of painkillers, the broken ribs should be fixed and the victim should cough at least 2–4 times during the day.
- Belts, tapes, and circular bandages that limit chest excursion are contraindicated.

#### **Chest Flotation**

Chest flotation (blowing, shaking, swaying) occurs when 3 or more ribs are broken in 2 or more areas, the lung is crushed. As a result, a freely moving shaking area is formed in the chest, ventilation is impaired. Flotation can result in serious complications and death.

#### **Symptoms of Chest Flotation**

- Multiple rib fractures can be detected during palpation (manual examination) of the chest.
- During careful observation, the presence of an area moving in the opposite direction with each respiratory act on the chest wall can be detected.
- Hypoxia (decrease in oxygen in the body) occurs.

**First aid for Chest Flotation**

The following measures should be taken during chest flotation:

- call an ambulance;
- lay the victim on the injured side or place a small bag filled with sand on that area;
- secure the injured area with wide adhesive tape;
- administer oxygen as soon as possible if possible;
- limit fluid intake;
- keep the airway open;
- use an aspirator (a device for suctioning) if necessary;
- transport the victim to the hospital.

**Medical Care for a Collarbone Fracture**

Blunt trauma to the collarbone causes a fracture or a rupture of the ligament between the collarbone and the acromial process. The victim holds the forearm (the part between the elbow and the thumb) and the elbow with the good hand and presses it against the body. When examining the victim, determine whether there is any deformation, open injury, pain and swelling in the area. Collarbone fracture is diagnosed by palpating the area and noting crepitus (crackling sound) in the fractured area, abnormal mobility, and limited movement in the shoulder girdle.

Broken bones should not be moved anymore, as blood vessels may be damaged and bleeding may occur. To determine the fracture, a doctor should perform an X-ray examination. As a result of the rupture of the ligaments connecting the collarbone to the shoulder blades, the collarbone rises up and forward, and when it sinks to the side, it falls and rises like a grand piano (piano, accordion) key (“key” symptom). When the collarbone is sprained at the point where it joins the sternum, it clearly bulges under the skin. Separation of the sternum-collarbone joint can also be treated by simply hanging the arm from the neck. The simplest method is to keep the elbow still and place the fingers of the injured limb on the healthy shoulder, providing comfort.



**Figure 2.** Fracture of the collarbone

Fractures of the collarbone can usually be treated with a figure-8 bandage or arm sling. In children and the elderly, the injured limb is usually suspended from the neck at a right angle using a petal bandage, with the head tilted to the injured side.



**Figure 3.** Medical care for a collarbone fracture

Such a bandage reduces muscle tension in the upper limb, reduces movement of the bone fragments (parts) of the broken collarbone and pain. If there are no bandages at hand, bend the victim's arms at the elbows and pull them back. Place a piece of wood under the elbows in the shoulder area so that the victim can support it with his elbows. In this case, take the victim with a broken collarbone to the hospital. During the recovery period and for a month after the bandages are removed, the victim should not lift weights and should lie on a hard bed. Surgical treatment is indicated only for open fractures or skin injuries (Colledge, Moya-Anegón & Bote, 2010, pp. 215-221).

### **First Aid for Chest Pain**

Chest pain is the most common condition. In most cases, chest pain is of cardiac origin. Disturbing pressing (putting a load on the chest), burning (stinging), squeezing (piercing) pain behind the sternum (chest) and in the heart area are characteristic symptoms of angina pectoris and myocardial infarction.

Often, the pain is transmitted to the left arm, the left half of the neck, back, jaw, shoulder. The characteristic gesture associated with pain is the patient pressing his palm on his chest. The pain can range from ordinary anxiety, discomfort to an unbearable feeling of crushing the chest. Even a mild heart attack in a patient is accompanied by a feeling of fear of death.

If the pain lasts from 5 to 15–20 minutes, decreases and gradually passes after stopping physical (psychoemotional) stress or taking nitroglycerin, this is angina pectoris. Pain lasting less than a minute is not typical of angina pectoris. Pain lasting more than thirty minutes indicates myocardial infarction.

Patients with non-traumatic chest pain are the most frequently referred for medical help. The most dangerous type of chest pain is cardiac arrest (Garfield & Sher, 1963, pp. 195-201).

### **Approach to Chest Pain**

The goal is to provide timely and adequate (fully appropriate) first aid to those with chest pain (especially in the heart area — behind the sternum), regardless of the patient's condition. It is not important for the rescuer to determine the origin of the pain. The main thing is to assess the patient's condition.

At the scene of the incident, the victim should first be examined externally.

If resuscitation measures are not necessary, the patient's vital signs (pulse, respiration, blood pressure, skin, pupil) are assessed. Any abnormal values should be rechecked and if they persist, measurements should be taken. If these values are within the normal range, an appropriate external examination should be continued and the patient's medical history should be taken. In cases where vital signs are unstable or severe illness is noted, the assessment should be expedited and completed (Sever, Vanholder, & Lameire, 2006, pp. 1052-1063).

### **Providing Medical Care During Bleeding**

Immobilization should be performed at the scene and as soon as possible. If immobilization is not possible, keep the victim in the position in which you found him.

1. Stop the bleeding.

If a tourniquet is applied, do not cover it with a soft bandage or splint. The immobilization should not be disturbed when the tourniquet is opened.

2. Prevent the spread of infection.



– Treat all wounds and bandage them. Do not apply the splint directly to an open wound. Apply a bandage to the wounds before applying the splint. To do this, cut the clothing and expose the wounds under the clothing (open fractures, etc.). Immobilize only after the wound has been treated and a clean bandage has been applied.

3. Relieve the victim's pain before applying the splint.

4. Immobilize.

Transport splints are applied over clothing and shoes or on the naked body.

– when the splint is placed on the naked body, place a soft pad on top of it that matches the shape of the injured part.

– when immobilizing, place a soft object in the areas that come into contact with the bone and fill the gaps with pillows, towels, cotton.

– when applying a splint to the upper limb, place a cotton pad or pillow under the armpit. When applying the splint to the chest, place the pillow in the palm of your hand, turn it towards the chest, and hang it from the neck using the petal.

– in case of ankle and foot injuries, use soft tools such as a pillow or a folded blanket for immobilization) (Falagas et al., 2008, pp. 338-342).

5. Having shaped (adapted) the splint to a healthy limb or yourself, apply it to the injured person.

6. Give the limbs a physiological position:

– for the upper limb: the shoulder should be brought to the body and folded at an angle of  $90^{\circ}$ ;

– for the lower extremities: the thigh should be raised in the  $5-7^{\circ}$  pelvic-hip joint with the calf flexed at the knee joint;

– for the spine and pelvis, the body and the surrounding area should be immobilized on a hard surface (stretcher, board);

– if the victim has a pelvic fracture, the victim should be stretched out on a hard surface and a pillow should be placed under the knee.

– in the case of neck and head injuries, a cervical collar should be applied and the entire body should be immobilized on the board.

7. It is advisable for the victim or another rescuer to help apply the splint, since the injured limb should be held by the hand above and below the injury site. The victim can hold the injured upper limb on his chest with the help of a healthy hand to provide a comfortable position. If the victim changes position, hold the splinted limb with his hand (Muxina, Evdokimov, & Sannikov, 2017, pp. 100-112).

8. In fractures of the sagittal and fibular bones, two adjacent joints (those above and below the injured area) should be immobilized, and in fractures of the humerus and femur, three joints should be immobilized. To immobilize the arm bent at the elbow, place a small piece of wood diagonally as shown in the figure. The splint should extend a few centimeters beyond the elbow and wrist.



**Figure 4.** Providing medical care during bleeding

9. Do not move the joint when it is broken and immobilize it in its present position.

10. Wrap the splint tightly around the entire circumference with a multi-layer bandage, gauze bandage or other bandage material. Do not tighten the bandage too much to prevent blood circulation and pain. Tie the knots in a healthy area.

11. Monitor blood circulation in the surrounding area. If the victim complains of increased pain, numbness in the limb, and if blood circulation is impaired, the applied splint (bandage) should be opened and re-closed or slightly loosened.

12. Raise the injured limb as high as possible from the body surface and hold it.

13. After filling the areas of the bone protruding from the skin or the embedded object with gauze or other bandage materials, wrap it. Do not put direct pressure on the bone protrusions. Do not touch the open wound or protruding bones with your hands.



**Figure 5.** Types of medical care during bleeding

14. Protect the victim from cold and heat. In cold weather, wrap the injured area with a blanket.

15. Pay attention to breathing and changes in the victim's level of consciousness.

16. Do not allow food or water to be taken.

17. Seek medical attention.

An improperly applied bandage can compress tissues and cause edema (swelling), bedsores, gangrene (tissue decay), and other complications. After immobilization, help the victim to take a comfortable position, apply a cold compress to the injured area, protect it from heat or cold, and calm it down.

#### **Medical Assistance During Bleeding**

Any damage to a blood vessel results in bleeding. If the bleeding occurs in an artery – arterial, if in a vein – venous, if in capillaries – capillary, if in internal parenchymal organs – parenchymatous bleeding.

– Arterial bleeding occurs under pressure and very quickly. Since the blood is under great pressure in the artery, it flows from the wound site like a fountain (pulsation, emphasis) and makes it difficult to form a clot. This type of bleeding is very dangerous because it is difficult to stop. Losing 1–1.5 liters of blood in a short period of time can lead to the death of the victim (Azizov, Efendiyev, & Magsudov, 2004, pp. 45-56).

Arterial blood is rich in oxygen, so it is scarlet in color.

– It is easier to stop bleeding from a vein than from an artery. Veins are often damaged because they are close to the surface of the skin. Blood in a vein is under lower pressure than blood in an artery and flows from the wound site continuously, slowly, and often in drops. Only when the veins of the body are damaged deep in the body, for example, in the trunk or calves, does severe bleeding occur, which is difficult to stop. Such bleeding can be stopped by applying a pressure bandage to the wound.



**Figure 6.** Arterial bleeding



Venous blood is rich in carbon dioxide, so it is dark red or maroon in color.

– Capillary bleeding is the most common and widespread type of bleeding. Since the lumen of the veins is small and the blood flows at low pressure, this bleeding is often weak. Bleeding manifests itself in the form of numerous small drops of blood that slowly collect on the bleeding surface. During capillary bleeding, the blood clots easily (within 1–3 minutes). Such blood differs from arterial blood in its light color.

– Parenchymal bleeding is observed when parenchymal organs are damaged (brain, lungs, liver, pancreas, spleen, kidneys, endocrine glands of internal secretion). These organs are rich in blood vessels and capillaries. In a parenchymal organ, damaged vessels do not accumulate and are not compressed by tissue. At this time, blood flows from the entire wound surface. Therefore, the bleeding becomes strong, life-threatening. Such bleeding is prolonged and profuse. It is very difficult to stop such bleeding with conventional methods. Blood usually accumulates in cavities and accumulates there (internal bleeding).

– Mixed bleeding is called bleeding that occurs as a result of damage to arteries, veins and parenchymal organs at the same time.



**Figure 7.** Venous bleeding

### **Basic Rules of Medical Care**

Thermal burns – occur as a result of the action of high temperatures on the skin and mucous membranes, the source of which is flame, hot substances and liquids, flammable substances. Thermal burns are serious injuries that in some cases lead to disability or even death. Burns are common in industry as well as in everyday life. The severity of the burn depends on the size of the burned area and the depth of tissue damage. There are 5 degrees of skin damage during burns (Valiyev, Shadlinski, & Mammadova, 2001, pp. 23-45):

I degree – redness and swelling of the skin at the site of injury;

II degree – the formation of small blisters filled with a light yellow liquid;

III A degree – the formation of large, tense blisters. The walls of the blisters are usually torn, the bottom of the wound is pink and moist. Pain sensation is preserved or weakened at the bottom of the blister. In more delayed periods, a light yellow, and in some cases brown and gray, scab may form;

III B degree – the formation of ulcers with bloody contents, usually with a disintegrated wall, a dry bottom, whitish, sometimes marble-like, with individual spots of discoloration. Pain sensation is weakened or absent, the pus (if present) is dark or brown in color.

IV degree – the presence of a characteristic black or dark brown pus, with thrombosed veins visible underneath, damage to the tissues located under the wound (muscle, tendon, etc.).



**Figure 8.** First-degree burn

In the first days of a burn, it is difficult to give an idea of the true depth of the injury. This can only be done after the skin has broken off. When providing first aid, the degree of injury is approximately determined, and in this case it is better to assume its severe form. The area of the burn is calculated according to the palm or 9 % rule in relation to the total area of the human body.



**Figure 9.** Second-degree burn



**Figure 10.** Third (a) degree burn



**Figure 11.** Third (b) degree burn



**Figure 12.** Fourth degree burn

**Table 1**  
Burns of the skin and subcutaneous tissue layers by degree of damage

Degree	Layers damaged	Appearance	Skin	Healing time
I degree	Epidermis	Redness	Dry	5-10 day
II degree	The entire epithelial covering	Redness and leeches	Moist	2–3 week
IIIa degree	The superficial layers of the epidermis and dermis	Yellow or red skin, leeches	Very dry	3–8 week
IIIb degree	All layers of the skin	White, brown skin	Skinny	There is no complete recovery
IV degree	The skin and subcutaneous tissues	Charred tissues	Dry	It doesn't heal

According to the 9 % rule, in elderly people, each of the individual parts of the trunk and extremities (head and neck, chest, abdomen, calves and feet, thighs, back, waist and buttocks) accounts for 9 % of the total body surface area, only the external genitalia and perineum are equal to 1 %. When determining the area of the burn using the palm rule, in elderly people the area of a palm is considered to be 1 % of the entire body area. In practice, both of these methods are used. If the burn area is small, the palm rule is applied, and if it is large, the 9 % rule is applied. Knowing the depth of the burn area and the injury, it is possible to determine its severity.

*Minor burns* – less than 5 % of the body surface is damaged.

*Moderate burns* – less than 20 % of the body surface is damaged, and deep burns – no more than 10 %. Severe burns – from 20 % to 60 % of the body surface is damaged, and up to half of them are deep burns.

*Very severe burns* – more than 60 % of the body surface is damaged, and deep burns more than half. Minor burns can be treated on an outpatient basis in elderly people (Ojagov, 2000, pp. 87-94).

In children, an individual approach is required depending on the localization of the damage. Treatment of other forms of burns should be carried out in specialized hospitals.

*Burn shock* – the most severe complication of burn disease, a rapidly developing complication caused by damage to a large area of the skin and other tissues, leading to impaired blood circulation. The prognosis for burn shock depends on early diagnosis and the timely initiation of effective treatment.

In practice, burn shock develops when 15-20 % of the body surface is damaged and the depth of the burn exceeds 10 %. The risk of burn shock is much higher in cases of respiratory tract burns. If the victim was in a closed place during the fire, a respiratory tract burn should be suspected. At the

same time, burns to the nose, lips, tongue, and hair are also indicative of a respiratory tract burn. If the victim has both skin and respiratory tract burns, then damage to half the area of the skin is enough to cause burn shock. An aseptic dressing or, if available, a special anti-burn dressing is applied to the damaged area. It is possible to apply a moisture-drying dressing impregnated with antibiotics or antiseptics. In case of minor burns, after appropriate anesthesia, the burn wound area is wiped with 0.25 or 0.5 % ammonia solution, warm soapy water or antiseptic solution, then treated with alcohol or iodine solution.

After that, it is wiped with a swab soaked in antiseptic solution (furacillin 1:5000, chloracillin, rivanol), then with 0.25 % novocaine solution and carefully cleaned of extraneous layers, foreign bodies, and remnants of the upper layer of skin on the wound. Intact leeches are not removed. Very tense leeches are cut off at the base.

First aid should be provided to a person whose clothes have caught fire without delay. The fire cannot be extinguished with your hands or any other object. Pour water over the victim, and if there is no water, cover him with any covering (blanket, carpet etc.). It is necessary to carefully remove the burnt clothing from the victim's body (cut it off if necessary).

At this time, it is necessary to try not to harm the burned body. It is not recommended to completely undress the victim, especially in the cold season. It is necessary to cut off the parts of the clothing stuck to the burn. It is forbidden to pierce the wounds, apply oil, various ointments to the burn, sprinkle powdered medicines, or touch it with your hands.

### **Medical Assistance During a Sunburn**

Sunstroke – occurs as a result of prolonged exposure to the sun's rays. Sunstroke most often occurs when the head is exposed to the sun for a long time. In such cases, the sun's rays increase blood flow to the brain and disrupt blood circulation in the brain. At this time, the victim experiences symptoms such as weakness, nausea, dizziness, severe headaches, ringing in the ears, shortness of breath, rapid pulse, chills, nausea and vomiting, and a temperature of 40°C or more. In severe cases, convulsions and loss of consciousness may also occur.

Some cases, these symptoms occur immediately, and in some cases, several hours after exposure to the sun, upon returning home. As soon as the first signs of sunstroke are noted, the victim should be taken to the shade or a cool room, removed from tight clothing, and laid in a semi-sitting position (the head should be higher than the body!). Give the victim cold water, wipe his face and chest with cold water. Apply ice to the head, sides of the neck, armpits and groin (where large veins pass) or, if this is not possible, a compress with cold water. At this time, you can also put mustard paper on the hands and feet. Another method is to undress the victim and wrap him in a cloth soaked in cold water, and apply ice to his head. When the victim's temperature returns to normal, wrap him in a dry cloth or towel.

Emergency medicine is a field of medical care applied in emergency situations that save people and protect their health. This field includes the provision of medical care in cases of accidents and injuries, natural disasters, epidemics and other emergencies (Mammadov, 2012, pp. 34-67).

The basis of medicine in emergency situations is to save lives, reduce diseases and accelerate the recovery process. Several important components related to this field can be noted:

1) Emergency Medical Care (EMC): Providing emergency medical care in emergency situations and to transport the injured to the hospital as soon as possible.

2) Resuscitation and intensive care: Primary patients with life-threatening diseases (cardiac arrest, trauma, asphyxiation, etc.) and intensive medical services are provided. The goal here is to restore their functions and protect them from disease.

3) Emergency Situations and Measures: Natural disasters, accidents and other measures. These tools include the provision of medical equipment, the preparation of mobile hospitals, first aid and treatment methods for events, and the management of drug supplies for various complications.

4) Psychological Assistance: The psychological state of people in emergencies is also very important. People who have been injured or have suffered a disaster may have emotional needs. In this case, support is provided by psychologists and psychiatrists.

5) Medical Area Assistance and Evacuation: Medical assistance in natural disasters, war or major accidents allows for the immediate evacuation and assistance of people from hazardous areas.

Emergency medicine also focuses on the provision of medical services in accordance with the conditions and the proper use of resources. For the successful implementation of emergency medicine, the training of medical personnel, effective teamwork and the use of modern equipment are essential.

*Emergency situations and medical foundations of life safety* – a set of medical approaches and projects applied in emergency situations to protect people's health and save their lives. Emergency situations include situations such as accidents, natural disasters, epidemics, wars, etc., and in this case there is a need to protect people's health under threat of life. By preventing life activities, it ensures that people live a socially and environmentally harmful life. Emergency medical care in emergency situations provides first aid to save the health of the patient or injured person. This includes activities such as stopping bleeding, resuscitation in case of cardiac arrest, solving breathing problems, and in case of trauma, etc. initial danger.

### **Conducting Triage for Medical Care**

The scene, the leader-rescuer, according to the START protocol, first of all separates the lightly injured—those who are free to move (walking) from other victims. They should be involved in providing first aid to themselves, each other and other (unable to walk) victims. Assistance is provided with the means at hand.

Triage and first aid should be carried out before the arrival of medical personnel or rescuers. Initial triage at the scene should be carried out quickly and cannot be replaced by any measures other than resuscitation measures. In such cases, these measures are carried out simultaneously with triage.

Considering that conducting medical triage is a difficult and responsible task, the leader of the rescuers selects those who are able to walk freely and those who are familiar with medical triage and first aid, and together with them continues medical triage based on the START protocol. Other able-bodied people gather together and provide self-help or mutual assistance (bandaging, splinting, etc.) to those with minor injuries (minor wounds, bruises, sprains). Those who are able to walk are marked with a green tag.

Leader of the rescuers regulates the sequence of medical triage and first aid at the scene, distributing tasks between team members and those who come to help.

As additional help arrives, the triage continues, becomes more specific and deeper. The members of the team consisting of able-bodied people are divided into groups of medical triage and first aiders under a single team and are given short training. It is very important to provide assistance as a team. One rescuer should act as the lead rescuer, while the others should follow his instructions. He should give orders in a clear, controlled voice. Shouting or using a loud voice can disrupt team interaction. Only one person should speak at a time.

The rescuer conducting the medical triage should assess the breathing, blood circulation and consciousness of the agile, unable to walk victims and divide them into three groups and mark them.

Marking should first start with victims who are not breathing (signs of life). After that, their blood circulation and consciousness should be assessed. It is not advisable to waste too much time on one victim:

- ✓ assistance should be provided without delay, first of all – red tag;
- ✓ assistance can be provided urgently and secondarily – yellow tag;
- ✓ deceased and dying – black tag.

Start with the most dangerous injury. If there are many injured victims at the scene, first of all, medical care should be provided to the victim who is seriously injured but has a higher chance of survival. If the victim has several injuries, it is necessary to start with the injury that is most life-threatening.

When medical triage of victims with different types of injuries, a primary view helps to determine the sequence of assistance. For example, a victim with an airway obstruction requires

more attention than a stable victim with a traumatic amputation (Seyfullayeva, Alekberova, & Mammadova, 2006, pp. 43-89).

### Conclusion

1. Scientifically substantiated, developed and experimentally tested system of regulatory provision of first aid and medical-organizational measures in emergency situations, training first aid participants in the rules for its provision and equipping them with means for its provision, made it possible to ensure the timeliness and effectiveness of first aid and reduce the mortality rate of victims who died before the arrival of emergency medical assistance by 15-20 %, reduce the time and costs of treating victims in hospitals.

2. An optimal scheme for organizing medical care for victims with combined burn injuries during the elimination of the consequences of an emergency situation accompanied by explosions or fires has been developed. When implementing it, all victims, after first aid, should be transported as soon as possible by air to medical institutions where they can be provided with fully specialized medical care—regional burn centers or burn departments of multidisciplinary hospitals.

3. Protecting the health of the population consists of a set of political, economic, legal, scientific, medical, sanitary-hygienic measures aimed at protecting the physical and mental health of every person, increasing their active longevity, and providing them with medical care.

4. Emergency and urgent medical assistance to citizens in cases requiring emergency medical intervention (accidents, traumas, poisonings and other diseases) is provided by emergency medical institutions, regardless of their form of ownership, as well as by persons obliged to provide first aid in accordance with the procedure established by law.

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