**ODESA NATIONAL MEDICAL UNIVERSITY**

**Department of Surgery №4** **with the course of oncology**

**METHODOLOGICAL RECOMMENDATIONS BY THEME:**

**"HEART-LEGANE REANIMATION** **: restoration of respiratory tract, respiration, circulation.** **Primary life support.** **»**

for students of the Faculty of Dentistry

Approved at the methodical meeting of the department

"28" \_\_ 28 \_\_201 7r. Minutes No. 1 \_

From av. Department, professor A.Tkachenko

**Odessa - 201** **7**

**"Cardio-pulmonary resuscitation** **:** **restoration of respiratory tract, respiration, blood circulation.** **Primary life support.** **»** **- 2 hours**

**.** **Topicality of the topic** : About ¼ of all deaths in humans are not associated with incurable and illness or aging and destructive changes in the brain. The United States annually records about 400,000, in Europe - 700,000 sudden deaths. At the end of the 1950s, during the pathoanatomical research, there was a lack of morphological substantiation of fatal cases in a large part of the dead. The idea of ​​resuscitation - the revival of people whose life was suddenly interrupted by some reason when it comes to unreasonable death of a completely viable and healthy organism in the absence of incurable disease or severe senile dementia. The main purpose of resuscitation - a complete recovery of life not only of all organs and systems of the body, but also the achievement of a complete social adaptation of people who have undergone clinical death.

Accordingly, mastering the skills of providing emergency care when stopping blood circulation is a must for every graduate of a medical school.

3. Objectives of the course:

3.1. General goals: to familiarize students with the history of development of resuscitation in the world and in Ukraine; have an idea of ​​the current achievements and perspective directions of research in the field of cardiopulmonary resuscitation.

3.2. Educational goals: to familiarize students with the contribution of domestic scientists in the study of the problem of cardio-pulmonary resuscitation and postreantism disease.

3.3. Specific goals:

- know:

1. Signs of clinical death .

2.Vids of cardiac arrest.

3. Stages and stages of cardio-pulmonary and cerebral resuscitation.

3.4. On the basis of theoretical knowledge on the subject to be able to:

1. Identify signs of clinical and biological death.

2. Conduct an indirect heart massage.

3. Apply the methods of control and restoration of the respiratory tract.

4. Perform artificial ventilation of the lungs by different methods.

4. Materials of pre-admission independent training (interdisciplinary integration):

Basic knowledge, skills, skills needed to study the topic:

No Discipline Know to Be able to

Provide:

1 Human anatomy The structure of the oropharyngeal and facial skeleton (upper respiratory tract). Mediastinal structure. Skeleton structure of the chest.

2 Human physiology Conditions of brain perfusion. Spirographic indicators. Influence of breathing on the state of the cardiovascular system and blood supply to the brain. Clinical and biochemical parameters of blood.Calculate cerebral perfusion pressure (CPR) in a particular patient. Calculate the index of oxygenation in a particular patient. Interpret the data of clinical and biochemical blood tests. 3 Internal medicine Classification of cardiac rhythm disturbances. Acute coronary syndrome. Reperfusion syndrome. Systemic inflammatory response syndrome. Pulmonary pathology (COPD, asthma). Interpret ECG results. Diagnose syndromes of postremunity disease.

4 Pharmacology Pharmacological support for resuscitation Apply specific drugs for specific types of cardiac arrest activities

5 Infectious diseases: Sepsis, pneumonia Early detection of infectious complications of postreative disease

Provided:

1 Neurology Post-oxygenated encephalopathy. Appalachian syndrome. Akinetic mutism. Determine the kind and depth of disturbance of consciousness. Conduct a neurological examination.

Intra-object integration

1 Syndrome of multiple organ failure Factors of SPON in the post-retention period

Reanimation is a complex of measures aimed at returning to life, but not only to restore the activity of the heart and lungs, as well as to preserve the functions of the brain, the discharge of a patient with the least neurological complications. Irreversible damage to the brain may be caused by a sharp decrease in the transport of oxygen (with shock , hypoxia) or its complete termination (clinical death) for more than a few minutes.The limits of time for circulatory disturbances are constantly reviewed, in the literature, intervals of 5 to 30 minutes are considered. With the immediate application of modern methods of resuscitation, it is often possible to restore the functions of the body and thus prevent the death of the brain, the development of the vegetative state and biological death, and those who survived to reduce the number of cerebral and other disabling complications. CPR can be started under any conditions without the use of special equipment as persons who do not have medical education, as well as specialist doctors.

2. The first reports from doctors about successful resuscitation relate to 1650, when Oxford was reanimated a woman hanged for 22 years, and the complex CPR in modern terms was not used.

The first experimental direct heart massage was carried out in 1874 on a dog, in 1880 the first attempt of resuscitation was described by the same method of the patient in the operating room (unsuccessful). The first successful case of recovery with the help of direct heart massage was described in 1902 (in an operating-room revitalized a woman operated on uterine cancer). The modern era of CPR began with the article by Cohenhoven with co-authors (1960), but before that, there were some articles on CPR issues.

**5. Contents of the theme: Cardiopulmonary resuscitation.**

**Cardiopulmonary resuscitation (CPR** ) is a complex of medical measures aimed at returning to a full-fledged life of a patient in a state of clinical death.

Indications for cardiopulmonary resuscitation The indication for cardiopulmonary resuscitation is the diagnosis of clinical death. Signs of clinical death are divided into primary and secondary. The main symptoms of clinical death are: lack of consciousness, breathing, palpitations, and persistent expansion of the pupils. Suspect a lack of breathing can be on the real estate of the chest and the anterior abdominal wall. To be sure of the authenticity of the sign, you must lean towards the victim, try his own cheek to feel the movement of air and listen to the breathing noises that go out of the mouth and nose of the patient. In order to check the presence of palpitations, it is necessary to test the pulse on the carotid arteries (in the peripheral vessels, the pulse is not tested when the blood pressure falls to 60 mm Hg or below). The pads of the index and middle fingers are placed on the region of the baska and are easily shifted sideways into the hole, limited by the muscular roller (sternoclavicular mucosal muscle). The absence of a pulse here indicates a stop of the heart. To test the reaction of the pupils, slightly open the eyelid and turn the patient's head to light. Sustained expansion of the pupils testifies to deep hypoxia of the central nervous system. Additional signs: change in the color of visible skin (dead skin, cyanosis or marble), lack of tone of the muscles (slightly raised and released limb freely falls like whip), lack of reflexes (no reaction to touch, scream, pain stimuli). Since the time lag between the onset of clinical death and the occurrence of irreversible changes in the cerebral cortex is extremely small, the rapid diagnosis of clinical death determines the success of all the following actions. Therefore, the recommendations for cardiopulmonary resuscitation indicate that the maximum time for the diagnosis of clinical death should not exceed fifteen seconds. Contraindications to cardiopulmonary resuscitation The provision of cardiopulmonary resuscitation is aimed at returning the patient to a full-fledged life, rather than delaying the process of dying. Therefore, resuscitation measures are not carried out in the event that the state of clinical death was a natural consequence of a long, severe disease that depleted the body and caused gross degenerative changes in many organs and tissues. We are talking about terminal stages of oncological pathology, extreme stages of chronic cardiac, respiratory, renal, hepatic insufficiency, etc. Contraindications to cardiopulmonary resuscitation are also visible signs of a complete lack of prospect of any medical measures. First of all, we are talking about visible damage, incompatible with life. For the same reason, there are no resuscitation measures in case of signs of biological death. Early signs of biological death occur after 1-3 hours after heart failure. This is the drying up of the cornea, cooling the body, cramping spots and cramping of the corpse. The drying of the cornea is manifested in the clouding of the pupil and the change in the color of the iris that appears to be subjected to a whitish film (this symptom is called "herb shine"). In addition, there is a symptom of "cat pupil" - with a slight compression of the eyeball, the pupil is compressed into a spatula. Cooling the body at room temperature occurs at a rate of one degree per hour, but in a cool room the process is faster. Cumulus spots are formed as a result of posthumous redistribution of blood under the action of gravity. The first spots can be found on the neck below and behind if the body lies on the back and in front if a man died lying on his stomach). Cramping begins with jaw muscles and then extends from the top down all over the body. Thus, the rules for cardiopulmonary resuscitation impose an immediate start of action immediately after the diagnosis of clinical death. Exception is made only of cases where the inability to return the patient to life is obvious (visible injuries incompatible with life, documented non-regressive degenerative lesions caused by severe chronic illness or expressed signs of biological death). Stages and stages of cardiopulmonary resuscitation Stages and stages of cardiopulmonary resuscitation were developed by the patriarch of resuscitation, author of the first international manual on cardio-pulmonary and cerebral reanimation by Peter Safar, doctor of the University of Pittsburgh. Today, international standards for cardiopulmonary resuscitation include three stages, each of which consists of three stages. The first stage, in essence, is the primary cardiopulmonary resuscitation and includes the following steps: ensuring the patency of the respiratory tract, artificial respiration and closed heart massage. The main purpose of this stage is to prevent biological death by means of emergency struggle against oxygen starvation.Therefore, the first basic stage of cardiopulmonary resuscitation is called elementary life support. The second stage is carried out by a specialized brigade of resuscitative therapists, which includes medical therapy, ECG control and defibrillation. This stage is called the further maintenance of life, since doctors set themselves the task of achieving spontaneous blood circulation. The third stage is conducted exclusively in specialized intensive care units, so it is called long-term support for life. Its ultimate goal is to provide complete restoration of all functions of the body. At this stage, a comprehensive examination of the patient is conducted, while determining the cause of the cardiac arrest, and assessing the degree of the condition caused by the clinical death of the injuries. Producing medical measures aimed at rehabilitation of all organs and systems, seeking to restore full mental activity. Thus, the primary cardiopulmonary resuscitation does not provide for the definition of the cause of cardiac arrest. Its technology is highly unified, and the methodological techniques are available to everyone, regardless of vocational education. The algorithm of cardiopulmonary resuscitation The algorithm for cardiopulmonary resuscitation was proposed by the American Cardiology Association (ANA). It suggests the continuity of resuscitation in all stages and stages of assisting patients with cardiac arrest. For this reason, the algorithm is called the chain of life. The basic principle of cardiopulmonary resuscitation in accordance with the algorithm is the early warning of the specialized brigade and the rapid transition to the stage of further maintenance of life. Thus, drug therapy, defibrillation and ECG control should be performed as early as possible.Consequently, the challenge of specialized medical care is a priority task of the basic cardiopulmonary resuscitation. Rules for cardiopulmonary resuscitation If care is provided outside of a health facility, first and foremost, the safety of the place for the patient and the resuscitation should be assessed. If necessary, move the patient. With the slightest suspicion of the threat of clinical death (noisy, rare or irregular breathing, confusion, pallor, etc.), you need to call for help. The protocol of cardiopulmonary resuscitation requires "a lot of hands", so the participation of several people will save time, increase the effectiveness of primary care and, consequently, increase the chances of success. Since the diagnosis of clinical death should be established as soon as possible, every move should be saved. First of all, you should check the presence of consciousness. In the absence of a response to a call and a question of a state of health, the patient can be slightly shaken by the shoulders (need extreme caution in case of suspicion of spinal injury). If the answers to the questions can not be achieved, it is necessary to squeeze the fingers of the nail phalanx of the victim. In the absence of consciousness, it is necessary to immediately call for qualified medical aid (it is better to do it through an assistant, without interrupting the initial examination). If the victim is in an unconscious state, and does not respond to pain irritation (groin, grimace), then this indicates a deep coma or clinical death. In this case, it is necessary to simultaneously open one's hand with one hand and evaluate the reaction of the pupils to the light, and the other to check the pulse on the carotid artery. People who are in an unconscious state may have a pronounced heartbeat, so expect a pulse wave of at least 5 seconds. During this time, check the reaction of the pupils to light. To do this, slightly open the eyes, estimate the width of the pupil, then close and open again, observing the reaction of the pupil. If it is possible, then direct the light source to Zenica and evaluate the reaction. Pupils can be stably narrowed when poisoned with some substances (narcotic analgesics, atropine), therefore it is impossible to fully trust this sign.Verifying the presence of palpitations often slows down the diagnosis, so international guidelines for primary cardiopulmonary resuscitation indicate that if in five seconds the pulse wave is not detected, the diagnosis of clinical death is established in the absence of consciousness and respiration. To record a lack of breathing enjoy the reception: "I see, I hear, feel." Visually observe the lack of movement of the chest and the anterior abdominal wall, then lean towards the patient's face and try to hear breathing noises, and feel the cheek air flow. It is unacceptable to waste time applying nails and mouths of bits of wool, mirrors, etc. The protocol of cardiopulmonary resuscitation shows that the detection of signs such as unconsciousness, lack of respiration and pulse wave in the main vessels - is enough to make a diagnosis of clinical death. Extension of the pupils is often observed only after 30-60 seconds after the heart stop, with the maximum this symptom reaches the second minute of clinical death, so you should not lose precious time for its establishment. Thus, the rules for conducting primary cardiopulmonary resuscitation order the earliest possible appeal for help to third parties, the call of a specialized brigade in case of suspicion of a critical condition of the victim, and the beginning of resuscitation actions at the earliest possible date. The technique of conducting primary cardiopulmonary resuscitation-Ensuring the passage of the respiratory tract In unconscious condition, the tone of the oropharyngeal muscles is reduced, which leads to overlapping the entrance to the larynx in the language and surrounding soft tissues. In addition, in the absence of consciousness, there is a high risk of blockage of the respiratory tract by blood, emesis, fragrances of teeth and prosthetics. The patient should be put on his back on a solid, even surface. It is not recommended to put a roller of the materials under the shoulder blade, or to provide a raised position to the head. The standard of primary cardiopulmonary resuscitation is Safar's triple reception: throwing the head, opening the mouth and pushing forward the lower jaw. To ensure throwing the head one hand is placed on the frontal-parietal region of the head, and another is raised under the neck and carefully raised. In case of suspicion of serious damage to the cervical spine (fall from height, injuries of the kidneys, car accidents), head thrown is not performed. In such cases, you can also bend your head and turn it to the sides. The head, chest and neck should be fixed in one plane. Airway is achieved by extracting light head, opening his mouth and lower jaw nomination. Nomination provide jaw with both hands. Thumbs are placed on the forehead or chin, and cover other branches of the mandible, shifting it forward. It is necessary that the lower teeth were on par with the top or slightly ahead of them. The mouth of the patient, usually slightly opens the nominating jaw. Additional disclosure mouth with one hand making a Phillips entering the first and second fingers. The index finger is introduced into the corner of the mouth of the victim and click on the upper teeth, then your thumb to press on the lower teeth vice versa. If tight compression jaws, the index finger is introduced from the corner of the mouth behind the teeth with the other hand click on the forehead of the patient. Triple reception Safar complete revision of the oral cavity. With cloth wrapped index and middle fingers, pull mouth vomit, blood clots, teeth fragments, pieces of prostheses and other foreign objects. Firmly seated remove dentures is not recommended.Sometimes artificial respiration independent breathing is restored after securing the airway. If not, start artificial respiration by mouth-to-mouth. Mouth shut victim handkerchief or cloth. Revives is the side of the patient, one hand it brings under the neck and slightly raises her friend puts on his forehead, seeking a cast of the head, fingers of the same hand clamped nose of the victim and then making a deep breath, exhale into the mouth makes the victim. The effectiveness of the procedure is judged by chest excursion. Primary cardiopulmonary resuscitation in infants conducted by mouth to mouth and nose. Throw the baby's head, then revives covers the mouth and nose of the child's mouth and makes exhalation. In carrying out cardiopulmonary resuscitation in newborns, rememberthat tidal volume of 30 ml. The method of mouth-to-nose used for injuries lips, upper and lower jaw, inability to open the mouth and in the case of resuscitation in the water. First, click on one hand on the forehead of the victim, and the other put forward the lower jaw with the mouth closed. Then make a breath in the nose of the patient. Each injection should take no longer than 1 s, then should wait until the chest fall, and take another breath into the lungs of the victim. After a series of two vduvanyy proceed to chest compressions (closed heart massage). The most common complications of cardiopulmonary resuscitation occurring during aspiration of airway blood and getting air into the stomach of the victim. To prevent exposure to blood in the lungs of the patient requires constant toilet mouth.When injected air into the stomach observed bulging in the epigastric region. In this case, turn towards the patient's head and shoulders, and gently press the abdominal region. Preventing penetration of air into the stomach including adequate provision airway. Also, avoid inhaling air with chest compressions. Closed cardiac massage necessary condition for the effectiveness of closed cardiac massage - the location of the victim on a hard flat surface. Reanimator can be from any part of the patient. The palms of the hands are placed on one another and placed on the lower third of the sternum (two fingers above the transverse attachment xiphoid process). Pressure on the sternum doing proximal (carpal) of the palm, fingers raised up with - a position to avoid fracture of ribs.Reanimator shoulders should be parallel to the sternum of the victim. When chest compressions elbow bend, to use part of its own weight. Compression produce quick energetic movement, the displacement of the chest at the same time should reach 5 cm. Relaxation period is approximately equal to the period of compression, and the whole cycle n ovynen be slightly less than a second. After 30 cycles make 2 breaths, then begin a new series of cycles of chest compressions. This technique of cardiopulmonary resuscitation should provide compresses frequency: 80 per minute. Cardiopulmonary resuscitation in children under 10 years includes closed cardiac massage at a frequency of 100 styskan minute. Compression is performed with one hand, and the optimum bias chest towards the spine - 3-4 cm. Infants spend a closed heart massage index and middle finger of his right hand. Cardiopulmonary resuscitation of newborns should provide a frame rate of 120 beats per minute. The most common complications of cardiopulmonary resuscitation during closed cardiac massage fractured ribs, sternum, liver rupture, cardiac injury, lung injury fragments of ribs.Most injuries occur due to improper location reanimator hands. Thus, in a high position hands sternum fracture occurs, a shift to the left - broken ribs and lung injury rubble, the shift to the right is possible rupture of the liver. Prevention of complications of cardiopulmonary resuscitation also includes monitoring the compression ratio of the strength and elasticity of the chest, so that the effect was not excessive. Performance measures Cardiopulmonary Resuscitation During cardiopulmonary resuscitation requires constant monitoring of the victim. The main criteria for effectiveness of cardiopulmonary resuscitation: improved color and visible mucous membranes (decrease pallor and cyanosis of the skin, appearance of pink lips); pupillary constriction; Recovery reaction of pupils to light; pulse wave on the trunk,and then the peripheral vessels (could feel a weak pulse wave at the radial artery at the wrist); blood pressure 60 80 mm .rt.st .; occurrence of respiratory movements. If there was a distinct pulsation of the arteries, then stop chest compressions and artificial respiration continue to normalize spontaneous breathing. The most common causes of absence of effectiveness of cardiopulmonary resuscitation, the patient is on a soft surface; incorrect hand position during compression; lack of chest compression (less than 5 cm ) ineffective ventilation (checked excursions chest and the presence of passive exhalation); delayed resuscitation or break 5-10 sec. In the absence of the effectiveness of cardiopulmonary resuscitation verify the correctness of its implementation, and continue saving measures. If, despite all efforts, 30 minutes before the resuscitative actions circulation signs of recovery have not appeared, the rescue stop.

**PROTOCOL cardiopulmonary resuscitation for adults**

(Primary and advanced resuscitation complexes)

1. Scope

Protocol requirements apply to all resuscitation of patients who are in a terminal condition.

2. The task of developing and implementing

1. Improved resuscitation in patients who are in a terminal condition.

2. Prevention of terminal state in situations that require emergency care (maintaining the airway, prevention of asphyxia, aspiration, etc.).

3. Maintenance of life through the use of modern methods and means of cardiopulmonary resuscitation.

4. Improving the quality of care, reduce its cost due to timely provide adequate intensive care.

5. Prevention of complications arising from the provision of intensive care patients who are in a terminal condition.

3. Medical and social significance .

By terminal condition can lead to injury, poisoning, infections, various diseases of the cardiovascular, respiratory, nervous and other systems involving dysfunction of the body or several bodies. Ultimately it appears critical circulatory and respiratory disorders, which gives reason to apply appropriate resuscitation measures, regardless of the reasons that caused it.

Terminal condition - the transition between life and death. During this period, the change of life caused such severe violations of functions of vital organs and systems organism itself unable to cope with disturbances arisen.

Data on the effectiveness of resuscitation and survival of patients in a terminal condition are very different. For example, survival after sudden cardiac arrest varies widely, depending on many factors (associated with heart disease in the presence of witnesses or not, in a medical facility or not and so on. D.). Results resuscitation during cardiac arrest are the result of a complex interaction of so-called "unmodified" (age, illness) and "programmable" factors (such as the time interval from the start of resuscitation). Initial resuscitation should be sufficient to prolong life in anticipation of the arrival of trained professionals who have the proper equipment.

Based on the high mortality from injuries and various emergency conditions in the prehospital phase should provide training not only health professionals but also an increasing number of active population only protocol modern cardiopulmonary resuscitation.

4. Indications and contraindications for cardiopulmonary resuscitation

In determining the indications and contraindications for the cardiopulmonary resuscitation should be guided by the following regulations:

1. "Instructions on criteria and procedure for determining the date of a person's death, termination of resuscitation" Ministry of Health (№ ​​73 dated 04.03.2003 g.)

2. "Instructions on finding a person's death based on brain death" (Ministry of Health order №460 of 20.12.2001 p. Registered by the Ministry of Justice of 17 January 2002 number 3170).

3. "Fundamentals of legislation on health care" (of 22 July 1993 r. №5487-1).

**Resuscitation measures were not carried out:**

- with signs of biological death;

the occurrence state of clinical death against the backdrop of progression reliably established incurable diseases or incurable effects of acute injuries incompatible with life. Hopelessness and futility of cardiopulmonary resuscitation in these patients should be predetermined and the council of physicians recorded in history. These patients include the last stage

malignancies atonycheskaya coma in disorders of cerebral blood flow in elderly patients, injuries incompatible with life, etc;

- if there is a documented refusal of the patient from cardiopulmonary resuscitation (Art. 33 "Fundamentals of legislation on health care").

Resuscitation measures shall be terminated:

- in finding a person's death based on brain death, including background inefficient use of the full range of measures aimed at maintaining life;

- the ineffectiveness of resuscitative measures to restore vital signs within 30 minutes (during resuscitation after occurrence during external cardiac massage at least one hit

carotid pulse 30-minute time interval measured again);

- If there are multiple cardiac arrest, can not be any health effects;

- If in the course of cardiopulmonary resuscitation revealed that the patient is not shown (ie if clinical death was unknown in human cardiopulmonary resuscitation begin immediately, and in the course of resuscitation

find out it was shown, and if resuscitation was not shown, it is stopped).

Reanimator - "nemedyky" conduct resuscitation:

- to signs of life;

- before the arrival of skilled or specialized medical personnel continued resuscitation or death states. Article 46 ( "Fundamentals of legislation on health care.");

- depletion of natural forces reanimator amateur (Zilber. P., 1995).

5. Clinical

In the process of dying usually distinguish several stages - preahonyyu, agony, clinical death, biological death.

Preagonic condition characterized by disintegration of body functions critical lower blood pressure, impaired consciousness varying degree, impaired breathing.

Following preahonalnыm as developing terminal pause - a condition that lasts 1-4 minutes, breathing stops developing bradycardia, asystole sometimes disappear pupil reaction to light, and other kornealnыy stem reflexes, pupils dilate.

After a pause developing terminal agony. One of the clinical signs of agony ahonalnoe breathing is characteristic of liquid, short, deep breathing convulsive movements, sometimes involving skeletal muscles. Respiratory movements may be weak, low amplitude. In both cases, external breathing efficiency is reduced. Agony ending last breath, becomes clinically dead. When sudden cardiac arrest ahonalnыe breaths may take a few minutes amid the missing circulation.

Clinical death. In this state, when the external signs of the death of the body (no heart rate, breathing and independent of any neuro-reflex reactions to external influences) remains the potential to restore its vital functions using the methods of resuscitation.

**The main signs of clinical death are**:

1. Lack of awareness

2. The absence of spontaneous breathing

3. No ripple on the main vessels

Additional signs of clinical death are:

1. Wide pupil

2. arefleksiya (no kornealыyuho reflex and reaction of pupils to light)

3. Pale, cyanosis of the skin.

Biological death. Expressed postmortem changes in all organs and systems that are permanent, irreversible, cadaverous character.

Posthumous changes are functional, instrumental, biological and corpse features:

1. Features:

lack of awareness

lack of breathing, heart rate, blood pressure

lack of reflex responses to all kinds of stimuli

2. Instrumentation:

electroencephalographic angiographic

3. Biological:

maximum pupil dilation

pallor and / or cyanosis, and / or marbling (spotting) skin, decrease in body temperature

4. mortem changes:

early signs

later signs

The observation of a person's death occurs when human biological death (irreversible death of a person) or brain death.

6. Initial resuscitation complex. Scheme for implementation and management

Initial resuscitation complex is made of a "first contact", including medical personnel without resuscitation equipment, medicines. Initial resuscitation complex in most cases carried out of the hospital.

The survival rate when performing the initial resuscitation complex depends on three main factors:

1. Early detection is vital critical violations

important functions.

2. The immediate early resuscitation and their

adequate implementation.

Z.Srochnoho reanimation brigade call for specialized help.

In conducting the initial resuscitation advisable to adhere to complex schemes 1.

**Events (action) Notes**

1. Assess the risk to the patient and reanimator. It is necessary to clarify and eliminate various possible danger to the patient and reanimator (heavy traffic, the threat of explosion, collapse, electrical discharge, corrosive chemicals, etc.).

2. Determine the presence of consciousness. 2.1. The patient was taken by the shoulders, shake (suspected spinal injury should not do it), loudly asked: "What's with you? Need help? ". 2.2. If the patient does not meet - calls for help 2.3. Continue to survey.

3. Restore airway patency; and ways to detect the presence of respiratory Recovery airway by using a number of techniques that allow you to push the root of the tongue from the back wall of the pharynx. The most effective, simple and safe for the patient following.

3.1. The method of getting head and lifting the chin with two fingers. One hand placed on the forehead of the patient, the other with two fingers raised chin, throwing his head back pushing the lower jaw forward and upward. Thus, eliminating mechanical obstacle to a current of air.

3.2. The nomination of the mandible without straightening head trauma with suspected cervical spine. With the release airways in patients with suspected cervical spine injury must use the nomination of the mandible without head extension in the cervical region. Reanimator placed on the part of the head of the victim. Base of the palm, which has zygomatic region, captures his head against a possible shift of the surface, which assisted. II-V (or II-IV) fingers of both hands captures mandibular branch near the ear and makes it from the power forward (up), displacing the lower jaw so that the lower teeth speech - or front upper teeth. Thumbs victim opens his mouth. You can not capture the horizontal branch of the mandible, as this may lead to the closure of the mouth.

3.3. In the presence of visible foreign bodies in the mouth - to reorganize the mouth.

3.4. Lean over the patient and within 10 seconds, watch the movement of the chest, listening to breath, try to feel the breath. If not breathing - call a specialized team.

3.5. If there is breathing - stable lateral position.

3.6. In the presence of automatic external defibrillators - connect the electrodes and follow the voice instructions of the device.

4. Make 2 "rescue" inspiration. 4.1. Ensure tightness of airways in forced inhalation. To perform artificial respiration (ALV):

- gagging the victim's nose thumb and index fingers. - firmly clasped lips of the patient to produce two slow, smooth forced inhalation, up to 2 seconds.

- If the air during forced inhalation into the lungs is not (no tours chest) - repeat attempt again perform the opening airways make inhalation 2. In an attempt to re - conduct rehabilitation of the oral cavity. If after readjustment forced breaths are unsuccessful move to remove the foreign body.

4.2. By using the method of "mouth to mouth", "mouth to nose", forced to do breathing slowly, taking his lips from the face of the victim between breaths to implement passive exhalation. Preferably use эkspyratornыe device "mouth - device - mouth", "mouth - device - the nose."

4.3. When forced inspiratory volume of inhaled air should be between 600-800 ml for an adult of medium build. To determine the proper amount of the first forced breath - test, conducted controlled lifting of the chest. Subsequent breaths produced in the same mode. m 5. Check carotid pulse (less than 10 seconds) 5.1. Determining pulse is only in the carotid artery. To do so, fingers bent at the phalanx, slide out to the thyroid cartilage

hrudynnoklyuchychnosostsevydnoy muscle.

5.2. If initial resuscitation complex carried out by a person who does not have special training, instead of defining the carotid pulse is expedient to determine the presence or absence of blood flow by circumstantial evidence:

- the reaction of the victim to hail,

- presence of spontaneous breathing, coughing,

- stock movements.

6. In the absence of a pulse - to move to chest compressions. Place hands during compression - the chest by 2 cross fingers above the xiphoid process completion.

Assistance is made on a flat, hard surface.

When the compression stress on the basis of palms. Hands with compression may be taken in the "lock" or one another "criss-cross". During compression at the location of the hands of "criss-cross" fingers should be raised and touching the surface of the chest. Compression can only suspend the time required for mechanical ventilation, and to determine the pulse in the carotid artery.

Arm at the elbow should not be bent.

Compression should be carried out to a depth of 4 to 5 cm (for adults). The first compression should test to determine elasticity and resistance chest. Subsequent compression produced with the same force.

Compression should be carried out with a frequency of 100 min., Possibly rhythmically. When compression reanimator shoulder line should be in line with the sternum and along with it. Location of hands perpendicular to the sternum. Compression held in the anteroposterior direction along the line connecting the breast of the spine.

When compression can not take your hands off the sternum.

Compression is performed mayatnykoobrazno without

sudden movements smoothly using the weight of the upper

half of his body. Offset base of the palm on the sternum unacceptable.

Not allowed to breach the ratio between breaths and forced kompressyyamy: - the ratio of breathing / compression should be 2:15, regardless of the number of people conducting cardiopulmonary resuscitation.

For nemedykiv - while in terms of compression possible locations hands on the center of the chest, between the nipples.

To assist can be used Arrange

tion for active compression - decompression Dec

tion cells (Kardyopamp "AMBU" or vitchyznyano-

the first production - "UKDR")

7. Holding chest compressions, mechanical ventilation. Check breathing

pulse.

7.1. After the fourth cycle compresses check for the carotid pulse.

7.2. In the absence - continue cardiopulmonary

resuscitation. Make two breaths and then proceed to kompressyyam chest.

7.3. When the carotid pulse check for breathing.

In his absence - performing ventilation (forced 10-12 breaths per minute), periodically checking the availability of the carotid pulse (1 per min.)

8. Implementation initial resuscitation complex two reanimator

8.1. Reanimator, performs chest compressions, is considered the leader. After items

(1, 2, 3, 4, 5) starts kompressyyam chest. Having made 15 packs, gives the command: "Inhale" controlling lifting the chest during a forced breaths.

8.2. Reanimator, located at the head of the patient, monitors the adequacy compress - check for the carotid pulse, simultaneous pressing of the chest.

8.3. When fatigue reanimator producing chest compressions, gives the command: "Inspiration. Prepare for change. " Controls the lifting of the chest at the time forced vdohov.Posle has 15 breaths and Compress podaetkomandu "breath. Change".

8.4 Reanimator, located at the head of the patient makes 2 breaths and moves to chest compressions, making further guidance.

9. Conduct initial resuscitation complex (PRK)

- If there defibrillator defibrillation expeditious

- In the absence of a defibrillator carry PRK

Electro therapy:

Energy digits: the first - 200 J, the ineffectiveness of second - 200Dzh, the ineffectiveness of the third - 360 J. A series of 3 bits, to be held in less than 1 minute. Do not stop between discharges in CPR. After discharge assess carotid pulse only if compatible with ECG signs of circulation. If immediately after discharge recorded ECG asystole should not be administered epinephrine / atropine. Need CPR for 1 minute, then the assessment rate and check the pulse.

Correction of potentially reversible causes of cardiac arrest

Potentially reversible causes:

hypoxia

hypovolemia

hypo- / hyperkalemia and metabolic disorders

hypothermia

tense pneumothorax

cardiac tamponade

poisoning

pulmonary embolism

ν 5.Podderzhanye airway

5.1.Vosstanovlenye airway by:

ν intubation

ν larenhyalnoy mask

ν kombytrubky

NB! When restored airway, ventilation does not stop during the compression of the sternum.

ν 6.Obespechenye intravenous access and drug administration

6.1. When fibrillation:

ν Adrenaline 1 mg / in every 3 minutes,

ν Amiodarone 300 mg if ZHF / VT persists after the 3rd level (alternative - lidocaine 100 mg)

ν Magnesium sulfate 8 mmol,

ν Sodium bicarbonate 0.5 mg / kg if pH <7.1 (if you can not determine the pH, to introduce the drug in 7-10 min. From the start of resuscitation).

6.2. If asystole:

ν Adrenaline 1 mg / in every 3 minutes,

ν Atropine less than 0.04 mg / kg.

6.3. In bezpulsovoy electrical activity:

ν Adrenaline 1 mg / in every 3 minutes,

ν Atropine 3 mg if the PEA with a frequency of less than 60 beats / min.

6.4. When technical difficulties endotracheal medications administered in high doses (2-3 times).

Literature:

1.V.V.Ruksyn Emergency cardiology, S-Pb, 1998.

2.A.Y.Zylber Critical Studies of Medicine, v.1, Petrozavodsk, 1997

3. P.Safar, Dzh.Bycher cardio - and cerebral resuscitation, M., 2010.

***Guidelines was ace. A. clerks***

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