

MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

Faculty Medical №1

Department of simulation medical technologies

CONFIRMED by
Vice-rector for scientific and pedagogical work



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METHODICAL RECOMENDATION
FOR ACADEMIC DISCIPLINE

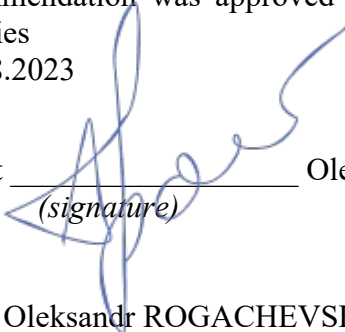
«EMERGENCY CONDITIONS IN MEDICINE»

Faculty, course: International, 5 year

Educational Discipline: Emergency conditions in medicine

Approved:

The methodical recommendation was approved at the meeting of the department of simulation
medical technologies
Protocol No. 1 of 28.08.2023

Head of the department  Oleksandr ROGACHEVSKYI
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PRACTICAL TRAINING

Practical classes No. 1 — 2

Topic: Methods of temporary stopping of external bleeding.

Purpose: To form, master and practice practical skills for temporary stopping of external bleeding .

To learn the ability to independently use knowledge and skills when performing skills for temporarily stopping external bleeding .

C to form a clear idea of the sequence of actions in the algorithm of performing skills for the temporary stop of external bleeding .

To form the competence of professional communication in the team when performing skills to temporarily stop external bleeding .

Basic concepts: primary surgical treatment of wounds, tourniquet, external bleeding, pressure bandage.

Equipment: tourniquet, latex gloves, medical masks, bandage, special hemostatic agents, gauze napkins, bandage, cotton wool.

Plan:

1. Organizational activities (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

1. Control of the reference level of knowledge (frontal survey) :
requirements for students' theoretical readiness to perform practical classes (concepts , indications, contraindications, technique , algorithm and complications during the performance of skills to stop external bleeding);

questions (clinical situations) to check basic knowledge on the subject of the lesson:

Know:

1. Differential diagnosis.
 2. Examination.
 3. Making a preliminary diagnosis.
 4. Providing emergency care according to protocols.
 5. Adherence to the algorithm of actions.
1. Formation of professional skills and abilities:
- mastering skills:
 1. Quick recognition of an emergency in a patient.
 2. Be able to quickly give and receive commands to medical personnel depending on the critical situation (teamwork).
 3. To be able to quickly carry out a differential diagnosis of an emergency.
 4. Examination.
 5. Determination of the emergency aid scheme based on the theoretical knowledge obtained in previous departments.
 6. Help (stopping external bleeding).
 7. Communication skills with staff and relatives in an emergency patient situation.
 - task content:

For each topic nosology:

 1. Briefing.
 2. Conducting a clinical simulation scenario.
 3. Debriefing.
 - recommendations (instructions) for performing tasks:

1. It is mandatory to have theoretical knowledge on the topic obtained while attending classes at previous departments.
 2. Acquaintance with the methodical recommendations of the department before the class.
 3. Completion of the elective course of the department of simulation medical technologies "Professional communication skills in extreme situations".
- requirements for work results and control materials for the final stage of the lesson: Passing a clinical scenario with a positive result for a simulated patient.

Definition.

Stopping external bleeding is a set of measures aimed at preventing blood loss during the period of transportation of the victim to a medical facility (temporary or preliminary stop) and final (permanent) surgical stop in a medical facility.

Bleeding is an outpouring of blood from blood vessels when the integrity of their wall is violated.

Indication:

1. Bleeding, which, in turn, is divided depending on the affected vessel into:
 - 1.1. Arterial (blood has a bright red color, beats in a strong stream, is ejected in spurts according to the pulse);
 - 1.2. Venous (blood has a dark cherry color, flows out in a laminar flow);
 - 1.3. Arteriovenous (mixed) (signs of both arterial and venous bleeding);
 - 1.4. Capillary (blood is released evenly over the entire surface of the wound (like from a sponge));
- and, depending on the origin:
- 2.1. Traumatic related to damage to blood vessels;
 - 2.1. Non-traumatic, associated with diseases that lead to increased fragility of blood vessels or increased permeability.

Ways to temporarily stop bleeding:

1. Applying a pressure bandage;
2. Finger pressing of the artery to the bone;
3. Maximum bending of the limb in the joint;
4. Applying a tourniquet;
5. Use of special contact hemostatic agents (hemostatic sponge, hemostatic bandage, hemostatic powder, applicators, etc.).

Necessary equipment: personal protective equipment (disposable gloves, mask, tourniquet, bandage, special hemostatic agents, gauze napkins, bandage, cotton wool).

Algorithm:

1. Applying a compressive bandage (applied to stop venous bleeding) It is most effective where soft tissues lie in a thin layer on bones (covers of the skull, the area of the wrist, elbow, knee

and ankle joints, the front surface of the lower leg).

1. If possible, give the affected limb a high position. To do this, you can put a roller, tightly folded clothes, a pillow under it. This leads to a decrease in blood flow to the limb and a decrease in pressure in the veins, which contributes to the rapid formation of blood clots in the wound.

2. Place several layers of sterile gauze napkins on the wound.

3. Put a tight ball of cotton wool on top of the napkins (a tight roll of bandage or a clean handkerchief folded into a tight roll).

WARNING!

You cannot apply cotton directly to the wound without a gauze pad.

4. Tightly fix everything with circular rounds of the bandage.

5. Make a record of the time of applying the bandage (most often on the victim's forehead in a four-digit format), while the exposure of the bandage is 2 hours in the summer, and 1 hour in the winter, after which the bandage should be replaced.

II. Finger pressing of the artery to the bone.

If the person providing help does not have bandage material or a tourniquet at hand, and the victim has arterial bleeding, you should immediately press the damaged artery with your fingers above the wound to the bone. This method is the fastest and quite effective, but it excludes the possibility of transporting the victim to a medical facility and requires considerable effort. It is difficult for even a physically strong person to use it for more than 10-15 minutes. Therefore, this method should be considered preparatory. It makes it possible to reduce blood loss and switch to another, more reliable method that allows transporting the victim.

The bleeding vessel is pressed in those places where the artery is located superficially to the bone, to which it can be pressed. The artery is pressed with a thumb or fist. It is possible to press the brachial and femoral arteries well, it is more difficult to press the carotid and especially the subclavian arteries. For each large arterial vessel, there are certain points where finger pressure is applied.

It is necessary to know the following anatomical places of compression of arteries:

1. When bleeding from a wound in the parietal area of the head, the temporal artery is pressed with the thumb to the temporal bone 1-1.5 cm in front of the auricle.

2. If the bleeding wound is located on the cheek, you should press the external maxillary artery with your thumb to the lower edge of the lower jaw at the border of its back and middle third.

3. When bleeding from the carotid artery (the wound is located on the lateral surface of the neck), its short-term stoppage is achieved by pressing the carotid artery with the thumb (or four others) to the transverse process of the VI cervical vertebra along the inner edge of the nodular muscle approximately in the middle of its length.

If the victim is lying on his back (the person providing help is near the head), the injured

person's head should be turned to the opposite side from the injury. The thumb of the brush is fixed on the chin, and the other four fingers are placed along the carotid artery and tightly pressed against the vessel that bleeds deep to the specified point.

4. Bleeding from the subclavian artery is stopped by pressing it against the 1st rib in the supraclavicular fossa outward from the place of attachment of the nodular muscle to the sternum. If the victim is lying on his back (the person providing help is facing him), then it is necessary to turn the head of the injured person to the side opposite to the injury. Wrap four fingers around the back of the neck, and press the artery against the rib with the thumb.

5. The axillary artery can be pressed in the depth of the axilla to the head of the humerus at the border of the front third of the axilla near the back surface of the pectoralis major muscle.

6. To stop bleeding from a wound located on the shoulder or forearm, it is necessary to press the brachial artery with four fingers of the brush to the humerus. The artery runs along the inner edge of the biceps brachii muscle.

7. When bleeding from a wound located on the thigh, it is necessary to press the femoral artery to the femur. The thumbs are pressed with the hip girth with the other four fingers of both hands. In case of ineffectiveness, you can press the artery in the inguinal fold to the horizontal branch of the pubic bone with the fist of the right hand, increasing the pressure by grabbing the right wrist with the left hand. In smooth people, you can press the artery with your knee.

III. Maximum flexion of the limb in the joint.

To temporarily stop bleeding at the scene, maximum flexion of the limb in the joint with subsequent fixation in this position can be successfully applied. This method is effective when the wound is below the joints - elbow, hip, knee or in the joint fossa. It is necessary to put a tight cotton-gauze roller in the joint area.

So, for example, in case of bleeding from the forearm and hand, you need to insert a cotton-gauze roller into the elbow, bend the arm as much as possible in the elbow joint and fix the forearm to the shoulder in the position of maximum flexion.

When the femoral artery is damaged, the limb is maximally bent at the hip and knee joints, the thigh and lower leg are bandaged to the body.

In case of bleeding from the lower leg and foot, a dense roller should be placed in the popliteal fossa, the leg should be fixed in the position of maximum flexion in the knee joint.

IV. Applying a tourniquet.

To temporarily stop the bleeding, a tourniquet is used - circular pulling.

Indications for applying a tourniquet are arterial bleeding, as well as bleeding that is not stopped by other means.

Contraindications are severe vascular sclerosis and purulent processes at the site of tourniquet application.

Harness application technique:

1. In case of arterial bleeding, the damaged artery should be immediately pressed with the hand above the wound to the underlying bone.

WARNING!

In order not to injure the skin, the area of the body intended for applying the tourniquet should be protected with clothing or wrapped with a scarf or napkin.

2. Before applying the tourniquet, the injured limb must be raised in order to increase blood flow from the peripheral segment to the general circulation, thereby filling the blood loss, at least partially.

3. The tourniquet is placed on the limb above the wound and as close as possible to it, trying to reduce the bleeding area as much as possible.

4. With the end that has a hook or button, turn the limb and place it on the front surface obliquely upwards. The other part of the tourniquet hangs over the back surface of the limb.

5. In this position, hold the end of the tourniquet together with the segment of the limb with one hand, and take the other end by the free part, stretch it strongly and wrap it around the limb, while pressing the obliquely directed end with the hook (buttons).

6. Gradually reducing the tension of the tourniquet, apply the next spiral turns, going from the periphery to the center, partially closing the previous rounds.

7. After finishing applying the turnstile, fasten the chain to the hook. If the harness has plastic buttons and holes, when the end with the holes is stretched, the latter lengthens, which greatly facilitates fastening by pushing the buttons into the holes.

Note!

The criterion for optimal tourniquet tension is to stop bleeding from the wound.

8. Place a note under the last turn of the turnstile indicating the time of application in hours and minutes.

V. Use of special contact hemostatic agents (hemostatic sponge, hemostatic bandage, hemostatic powder, applicators, etc.).

1. If possible, remove blood from the wound.

2. Tightly tampon the wound with a hemostatic agent (in the case of using a powder, pour it into the wound; in the case of using an applicator, insert it into the wound).

3. Press the tool for 3 minutes until the bleeding stops.

4. Bandage the affected area.

4. Summary:

After completing the lesson on the topic " Methods of temporary stopping of external bleeding ", students should:

Have formed and worked out practical skills for temporary stopping of external bleeding .

To learn the ability to independently use knowledge and skills when performing practical skills for temporary stopping of external bleeding .

Have a well- formed and clear idea of the sequence of actions in the algorithm of performing skills for temporary stopping of external bleeding .

To have the formed competence of professional communication in the team when performing the skills of temporary stoppage of external bleeding .

5. List of recommended literature:

Main:

1. Anesthesiology, intensive care and intensive care: a study guide (University I-III of the Republic of Armenia) / A.A. Ilko. - 2nd ed., revised. and add., "Medicine", Kyiv, 2018
2. Surgery: textbook / O.Yu. Usenko, G.V. Bilous, G.Y. Putintseva. - 5th edition. - K.: VSV "Medicine", 2021. - 416 p.
3. Surgical diseases (textbook) — P.D. Fomin, Ya.S. Berezhnytskyi, Ya.S. Berezhnytskyi, O.A. Viltsanyuk, M.D. Zheliba et al., - K.: Medical University "Medicine", 2017

Additional:

1. Emergency situations in surgery (study guide) — L.M. Kovalchuk, K.M. Bobak, A.I. Bobak, V.V. Kyretiv et al., 2017

Electronic information resources:

1. <https://www.c-tecc.org/our-work/guidance> - Committee on Tactical Emergency Relief
2. <https://zakon.rada.gov.ua/laws/show/z0356-22#n42> - Order of the Ministry of Health of Ukraine No. 441 dated 09.03.2022 "On approval of procedures for providing pre-medical assistance to persons in emergency situations"
3. <https://gmka.org/uk/category/dlya-medykiv/nevidkladna-hirurgiya/> - Global Alliance for Medical Knowledge
4. <https://zsz.pp.ua/nozhove-poranennya-v-zhivit-infikovana-rana-peredno-cherevno-stinki-kod-za-mkx-10/> – Knife wound to the stomach: infected wound of the front abdominal wall, code according to MKX -10