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

(signature)

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PRACTICAL TRAINING

Practical lessons No. 3

Topic: Access to peripheral vessels: peripheral venipuncture, placement of a venous catheter, intraosseous access.

Purpose: To form, master and practice practical skills in access to peripheral vessels .

Learn the ability to independently use knowledge and skills when performing skills related to access to peripheral vessels .

C to form a clear idea of the sequence of actions in the algorithm of performing skills on access to peripheral vessels .

To form the competence of professional communication in the team when performing skills on access to peripheral vessels .

Basic concepts: peripheral venipuncture, venous catheter, intraosseous access.

Equipment: Hand for intravenous injections, sterile manipulation table, sterile: kidney-shaped trays, syringes with a capacity of 2, 5, 10, 20 ml, peripheral intravenous catheters of several sizes, needles 4-6 cm long, 0.8 mm in diameter, tweezers, cotton balls, gauze napkins, sterile rubber gloves , a sterile disposable mask in a package, medicines in vials, ampoules, a pill, an antiseptic solution, a tourniquet, a napkin, an oil pad, an oil pad, a sticky patch, a tray for used tools and materials.

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 theoretical readiness of students to perform practical classes (concepts , indications, contraindications, technique , algorithm and complications during the performance of skills on access to peripheral vessels);

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

Know:

1. Concept.
2. Indication.
3. Contraindication.
4. Conducting technique.
5. Adherence to the algorithm of actions.
6. Complication.

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 (access to peripheral vessels).
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. Indication.

Venipuncture — venipuncture for the purpose of injecting various medicinal products into the vein by jet (intravenous injection), drip (intravenous infusion), for the purpose of blood sampling for laboratory tests, bloodletting, measurement of venous pressure.

Contraindications . Violation of the blood coagulation system (due to pathological conditions or long-term use of anticoagulants). The presence of skin and subcutaneous tissue diseases at the puncture site.

Venue For venipuncture, the subcutaneous veins of the elbow bend are most often used, and if they are poorly contoured, you can use other veins (back surface of the forearm, hand, lower limbs). In young children, venipuncture is usually performed in the subcutaneous veins of the temporal region of the head. Performed by a doctor or an experienced nurse.

Necessary equipment: sterile manipulation table, sterile: kidney-shaped trays, syringes with a capacity of 2, 5, 10, 20 ml, needles 4-6 cm long, 0.8 mm in diameter, tweezers, cotton balls, gauze napkins, sterile rubber gloves, sterile mask single use in a package, medicinal drugs in vials, ampoules, sawdust, antiseptic solution, tourniquet, napkin, wax pad, oilcloth, sticky patch, tray for used tools and materials.

Algorithm:

1. Conduct psychological preparation of the patient for manipulation.
2. Check whether the inscription on the ampoule corresponds to the appointment sheet, as well as the expiration date.
3. Carry out hygienic treatment of hands, put on sterile rubber gloves.
4. Fill the syringe with medicine and let the air out of it.
5. Offer the patient to take a comfortable position, it is better to lie down. Ask him to expose the injection site.
6. Place a firm pillow under the patient's elbow.

7. Apply a rubber tourniquet (on a shirt, towel) to the patient's shoulder above the elbow bend, so that the free ends are directed upwards.
8. Ask the patient to clench and unclench the fist several times.
9. Ask the patient to make a fist, palpate the veins of the elbow.
10. Wipe the inner surface of the elbow bend with two cotton balls soaked in alcohol.
11. Take the syringe in the right hand so that the index finger fixes the needle sleeve, the little finger - the syringe piston, and the others embrace the syringe cylinder.
12. Fix the vein by slightly pulling the skin above it with the thumb or forefinger of the left hand.
13. Hold the syringe parallel to the skin with the tip of the needle and the scale up.
14. Pierce the skin above the vein and carefully insert the needle into the vein, passing it through the vessel.
15. When you feel a "failure", gently pull the plunger of the syringe towards you until blood appears in the syringe.
16. Remove the harness with your left hand.
17. Press the piston with your left hand without changing the position of the syringe.
18. Inject the medicine slowly, leaving 0.5–1 ml of liquid in the syringe.
19. Attach a cotton ball soaked in alcohol to the injection site.
20. With a quick movement, pull out the needle.
21. Ask the patient to bend the arm at the elbow joint for 3–5 minutes, leaving the cotton swab soaked in alcohol at the injection site.
22. Disinfect used tools.
23. Make a note about the performed manipulation in the appointment sheet.

Placement of a venous catheter

Definition. Indication.

Placement of a venous catheter is a method of establishing access to the bloodstream for a long time through peripheral veins in the form of a peripheral intravenous catheter.

Indication:

1. Administration of drugs to patients who are unable to take the drug orally, in particular for a long time;

2. Urgent conditions in which quick access to the vascular bed is necessary;

3. Intravenous administration of medicines, solutions and blood preparations;

4. Parenteral nutrition (except for the introduction of nutritional mixtures containing lipids);

5. The need for quick and accurate administration of the drug in an effective concentration (especially when the drug can change its properties when taken orally);

6. Frequent intravenous administration of drugs;

7. Blood collection for clinical studies conducted at time intervals (for example, determination of glucose tolerance, drug content in plasma and blood).

Contraindications . Violation of the blood coagulation system (due to pathological conditions or long-term use of anticoagulants). The presence of skin and subcutaneous tissue diseases at the puncture site.

Venue For placement of a venous catheter, the lateral and medial subcutaneous veins of the hand, intermediate veins of the elbow, and intermediate veins of the forearm are most often used, and sometimes carpal and finger veins can be used (if the above-mentioned veins cannot be catheterized).

Necessary equipment: sterile manipulation table, sterile: kidney-shaped trays, peripheral intravenous catheters of several sizes , tweezers, cotton balls, gauze napkins, bandage, sterile rubber gloves, sterile mask for single use in a package, drugs in bottles, ampoules, sawdust, antiseptic solution , tourniquet, tissue, oilcloth pad, oilcloth, sticky patch, scissors, tray for used tools and materials.

Algorithm:

1. Conduct psychological preparation of the patient for manipulation.
2. Check whether the inscription on the ampoules, bottle corresponds to the appointment sheet, as well as the expiration date.
3. Carry out hygienic treatment of hands, put on sterile rubber gloves.
4. Offer the patient to take a comfortable position, it is better to lie down. Ask him to expose the catheterization site.
5. Place a firm pillow under the patient's elbow.

6. Apply a rubber tourniquet (on a shirt, towel) to the patient's shoulder above the elbow bend, so that the free ends are directed upwards.
7. Ask the patient to clench and unclench the fist several times.
8. Ask the patient to make a fist, palpate the veins of the elbow.
9. Wipe the inner surface of the elbow bend with two cotton balls soaked in alcohol.
10. Take the catheter with three fingers of the right hand, remove the protective cover.
11. Fix the vein by slightly pulling the skin above it with the thumb or forefinger of the left hand.
12. Insert the catheter at an angle of 15 degrees to the skin, observing the appearance of blood in the indicator chamber.
13. When blood appears in the indicator chamber, reduce the angle of inclination of the needle-stylet and insert the needle into the vein by a few millimeters.
14. Fix the needle-stylet, and slowly move the cannula from the needle into the vein until the end (the needle-stylet is not completely removed from the catheter yet).
15. Remove the harness with your left hand.
16. DO NOT insert the needle into the catheter after moving it from the needle to the vein.
17. Pinch the vein along its length to reduce bleeding and finally remove the needle from the catheter.
18. Remove the plug from the protective cover and close the catheter or connect the infusion system.
19. Fix the catheter on the limb.

4. Summary:

After completing the lesson on the topic " Access to peripheral vessels: peripheral venipuncture, placement of a venous catheter, intraosseous access ", students should:

Have formed and practiced practical skills in access to peripheral vessels .

Learn the ability to independently use knowledge and skills when performing skills related to access to peripheral vessels .

Have a well- formed and clear idea of the sequence of actions in the algorithm for performing skills on access to peripheral vessels .

To have the formed competence of professional communication in the team when performing skills on access to peripheral vessels .

5. List of recommended literature:

Main:

1. Anesthesiology 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. Bereznytskyi, Ya.S. Bereznytskyi, 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-hirugiya/ - Global Alliance for Medical Knowledge