TOPIC 1. Main duties and actions of the post nurse in surgical department

Aim of the lesson:
1. To study the structure of the nursing post.
2. Know the responsibilities of a post nurse.
3. Get acquainted with the documentation kept by the nurse.
4. Master the practical skills of a nurse on duty.

The post of a nurse is an important part of the surgical department. As a rule, one nursing post is needed per department, but in large departments there may be two, and sometimes three. The post is placed near the served wards in such a way that all wards of the department are in the examination of the nurse.

Duties of the guard nurse:
- compliance with medical and sanitary-hygienic regimes in the department;
- caring for seriously ill patients and providing them with the necessary assistance;
- measurement of body temperature in the morning and in the evening with the entry of temperature indicators in the temperature sheet;
- counting heart rate and respiration rate, measuring blood pressure;
- measurement of urine output;
- collection of materials for analyzes, according to the doctor's prescription, and their delivery to the laboratory;
- maintaining medical records;
- preparation of portioned requirements;
- control over the receipt of the prescribed diet by the patients;
- preparation of patients for operations;
- preparation for patients for examinations;
- reception of patients entering treatment;
- checking the sanitary treatment of patients carried out in the admission department;
- familiarization of patients with the internal regulations and personal hygiene; careful fulfillment of doctor's prescriptions.

Body temperature. The measuring of the temperature is a daily duty of the nurse. The medical thermometer is calibrated from 34 up to 42°C. The mercury column does not fall down by itself, it needs to be shaken down. Thermometers are kept in cups with dis- infectant solutions (3% solution of hydrogen peroxide, 0.5% solution of chloramine). Before use the thermometer needs to be wiped with a towel, bring the mercury mark to 35°C and place it under the patient’s armpit, preliminary wiping it with a towel for sweat. The
vessel with mercury should be densely touched by the patient’s body. The patient should hold the thermometer for 10 min. For seriously ill patients, it is possible to measure temperature in the rectum, but it is necessary to remember, that the temperature is 0.5-1°C higher there. Before entering the thermometer into the rectum, it is necessary to grease with vaseline. Children’s temperature can be taken in the inguinal wrinkle. The child bends his leg in the hip, so that the wrinkle in the groin will appear. Time of measurement of temperature: 6-7 am and 4-5 pm. While measuring temperature the patient should sit or lie down. With the presence of family the temperature may increase by 1.5-2°C. The temperature is written down in the temperature sheet. In the morning the body temperature is always lower than in the evening.

In the hospital, body temperature is measured twice a day: between 6 and 8 hours and 17-19 hours. The data obtained is recorded in the temperature log, and then transferred to the temperature sheet in the hospital patient card.

According to the degree of increase, they are distinguished:
- subfebrile body temperature - from 37 °C to 38 °C.
- febrile body temperature - from 38 °C to 39 °C.
- pyretic body temperature - from 39 °C to 41 °C.
- hyperpyretic body temperature - above 41 °C.

Fever, also called pyrexia, abnormally high body temperature. Fever is a characteristic of many different diseases. Types of fever:
1. Continuous/sustained fever: Temperature remains above normal throughout the day and does not fluctuate more than 1 °C in 24 hours.
2. Intermittent fever: The temperature elevation is present only for a certain period, later cycling back to normal.
3. Relapsing fever: temperature returns to normal for days before rising.
4. Tertian fever (48 hour periodicity).
5. Remittent fever: temperature remains above normal throughout the day and fluctuates more than 1 °C in 24 hours.

Pulse study. Pulse - periodic jerky vibrations of the walls of blood vessels associated with changes in their blood supply and blood pressure in them during one cardiac cycle. The easiest way to examine the pulse is on the radial artery, which is located superficially and is easily palpable between the styloid process of the radius and the tendon of the internal radial muscle. When examining the pulse on the radial artery, the palm is placed above the wrist joint so that the thumb is on the dorsum of the forearm, and the rest of the fingers are on the radial artery at the base of the patient's first finger. Explore the main characteristics of the pulse - frequency, rhythm, content, tension, magnitude.

Blood pressure measurement. Blood pressure is an important indicator of the functional state of the cardiovascular system. When measuring blood pressure, the
patient should sit or lie quietly, not talk or observe the course of the study. A cuff is placed on the shoulder, 2-3 cm above the elbow bend, and fixed in such a way that a finger passes between it and the skin. The patient's hand is placed comfortably on the bed or table, palm up. In the elbow bend, the brachial artery is found and the phonendoscope is pressed tightly against it. Then, air is gradually pumped into the cuff with a "pear" with a closed valve. With the help of a phonendoscope, they catch the moment when the sounds of pulse pushes are no longer heard and, slowly opening the cylinder valve, the pressure in the system is reduced. At the moment when the amount of back pressure in the cuff reaches the level of systolic pressure, a short loud sound – tone is heard. The numbers on the scale indicate the magnitude of the systolic pressure. With a further decrease in the pressure in the cuff, the sonority of the tones decreases and, finally, they disappear. At the moment the tones disappear, the numbers on the manometer indicate the value of the diastolic pressure. On the first day of the postoperative period, blood pressure is monitored every 2 hours.

In the department, the senior nurse writes out the medicines according to applications of the ward nurses who daily write out the medical assignments from medical histories to special writing-books or sheets, which are individual for each patient, and submit the list of drugs appointed to each patient to the senior nurse.

Drugs which belong to the A and B list are stored separately in special safes. A list of preparations which belongs to the A and B list (soporifics, codeine, platyphyllin, etc.) with instructions of the greatest single and daily doses, should be placed on the inside of the door of the safe. Stocks of narcotics should not exceed a 5-day requirement. Stocks of strong drugs should not exceed a 10-day requirement. Medicines which contain narcotics are subject to an object-quantitative account in a special journal, numbered and stamped. In the log-book of narcotic preparations, each analgesic is given a definite sheet, where the name of the medicines, amount, date of application, surname, name of the patient, number of his case record, amount of used ampoules and any remainder are specified.

There are different methods of giving drugs:
— external — through the skin, mucous membrane, respiratory tracts;
— enteral — through the mouth, under the tongue, through the rectum;
— parenteral — administration of medicine into an organism outside the digestive tract.

Questions for test control

1. The nursing post of the surgical department is located:
a) in a dedicated room;
b) next to the manipulation cabinet;
c) not far from the staff room;
d) in the corridor;
e) next to the dressing room.
2. The distance from the nursing station to the most distant ward should not exceed:
   a) 27-30 m;
   b) 32-35 m;
   c) 37-40 m;
   d) 42-45 m;
   e) 47-50 m.

3. A nursing post is organized for each:
   a) 10 beds;
   b) 15 beds;
   c) 25 beds;
   d) 35 beds;
   e) 40 beds.

4. The duties of a nurse include:
   a) reception and accommodation in patient wards;
   b) assistance in feeding seriously ill patients;
   c) carrying out hygienic baths;
   d) replacement of bed linen;
   e) carrying out sanitary and hygienic treatment of premises.

5. The duties of a nurse include:
   a) assistance in feeding seriously ill patients;
   b) carrying out hygienic baths;
   c) observation of patients;
   d) replacement of bed linen;
   e) carrying out sanitary and hygienic treatment of premises.

6. The duties of a nurse include:
   a) assistance in feeding seriously ill patients;
   b) carrying out hygienic baths;
   c) replacement of bed linen;
   d) exact fulfillment of doctor's prescriptions;
   e) carrying out sanitary and hygienic treatment of premises.

7. The duties of a nurse include:
   a) measuring the pulse, respiratory rate, urine output, the amount of sputum, entering these data into the medical history;
   b) monitoring the cleanliness, silence and order in the wards, compliance with the patient's personal hygiene rules, taking care of the timely provision of patients with everything necessary for their care and treatment;
   c) provision of emergency first aid to seriously ill patients;
   d) collecting materials for analyzes, delivering them to the laboratory, timely receiving research results and pasting them into the medical history;
e) all answers are correct.

8. Documentation maintained by the post nurse:
   a) journal of movement of patients in the department;
   b) the register of potent and narcotic substances;
   c) a register of vaccinations against tetanus, rabies, etc.;
   d) register of general cleaning in wards;
   e) all answers are correct.

9. Documentation maintained by the post nurse:
   a) medical record of an inpatient (temperature sheet, observation sheet for a seriously ill patient, results of laboratory tests, records of the introduction of potent or narcotic drugs);
   b) a list of appointments (records of the fulfillment of certain appointments);
   c) manipulation journal;
   d) all answers are correct.

10. Thermometry is performed:
    a) in the morning (from 6 to 8 o'clock);
    b) in the evening (from 17 to 19 hours);
    c) in the morning (from 4 to 8 hours) and in the evening (from 19 to 20 hours);
    d) in the morning (from 6 to 8 hours) and in the evening (from 17 to 19 hours).

11. The most common temperature is measured in:
    a) axillary area;
    b) inguinal fold;
    c) the oral cavity;
    d) rectum;
    e) vagina.

12. The duration of measuring body temperature is:
    a) 2-3 minutes;
    b) 5-6 minutes;
    c) 10 minutes;
    d) 15 minutes.

13. The patient's body temperature ranges from 37 °C to 38 °C. What is the temperature called:
    a) subfebrile;
    b) febrile;
    c) pyretic;
    d) hyperpyretic?

14. The patient's body temperature ranges from 38 °C to 39 °C. What is the temperature called:
a) subfebrile;
b) febrile;
c) pyretic;
d) hyperpyretic?

15. Persistent fever (febris continua) is characterized by:
a) prolonged increase in body temperature with daily fluctuations of not more than 1 °C;
b) prolonged increase in body temperature with daily fluctuations of more than 1 °C;
c) temperature fluctuations that do not have a certain pattern;
d) prolonged hyperthermia, followed by a short period of normalization of body temperature, followed by its increase again;
e) high body temperature for 1-2 days, which changes to normal, and then rises again to 38-40 °C.

16. Relieving fever (febris remittens) is characterized by:
a) prolonged increase in body temperature with daily fluctuations of not more than 1 °C;
b) prolonged increase in body temperature with daily fluctuations of more than 1 °C;
c) temperature fluctuations that do not have a certain pattern;
d) prolonged hyperthermia, followed by a short period of normalization of body temperature, followed by its increase again;
e) high body temperature for 1-2 days, which changes to normal, and then rises again to 38-40 °C.

17. The patient has a morning temperature in the range of 36.0-36.5 °C for two weeks, and an evening temperature in the range of 37.5-38.0 °C. What type of fever does the patient have:
a) remitting;
b) exhausting;
c) incorrect;
d) intermittent?

18. What measures for the care of patients should be applied in the first stage of fever:
a) drink hot tea and cover the patient with a blanket;
b) change the bed linen;
c) put a cold compress on the forehead;
d) give a cold drink;
e) put the patient with raised legs?

19. What care should be provided to the patient in case of critical decrease in body temperature:
a) put a cold compress on the forehead;
b) give a cold drink;
c) to reveal the patient;
d) put the patient with warmers, give hot tea;
e) to lay the patient with bubbles of ice?

20. Transportation of the patient in the surgical department can be carried out:
a) on a wheelchair;
b) on a wheelchair;
c) on a functional bed;
d) all of the above is correct.

Control questions
1. How should a nurse's post be equipped?
2. Responsibilities of the sentry nurse.
3. Responsibilities of the assistant nurse.
4. Acceptance and delivery of duty.
5. Storage of medicines.
6. Application of ice-bag.
7. Ways of usage of medicines.
8. Thermometry.
10. Care of skin, eyes, month cavity, nasal cavity, ears.
11. Making patients bed.
12. Change of patient bed and body clothes.
16. Preparing the patient for ultrasound and computed tomography of the abdominal organs.
17. Preparation of the patient for x-ray examination of the stomach and duodenum.
18. Preparing the patient for an X-ray examination of the colon.
19. Preparing the patient for various methods of endoscopic examination.
20. How to collect urine for analysis?
21. How to collect feces for analysis?
22. Sputum collection for analysis.

Recommended literature

The basic (basic)


Additional
**TOPIC 2. Main duties and actions of the nurse in the manipulation room**

**Aim of the lesson:**
1. Examine the equipment of the manipulation room.
2. Know the responsibilities of a manipulative nurse.
3. Get acquainted with the documentation of the manipulation room.
4. Master the practical skills of manipulation nurse.

Manipulation room is a specially equipped room for various medical procedures.
Manipulation room is designed to perform:
1. Intradermal injections.
2. Subcutaneous injections.
3. Intramuscular injections.
4. Intravenous injections.
5. Intravenous drip infusion.
6. Taking blood from a vein for examination.
7. Carrying out all research and tests related to transfusion of blood components.

Responsibilities of a manipulative nurse:
1. Preparation of the office for work.
2. Timely and accurately performs the doctor's prescription.
3. Performs all types of injections and intravenous drip infusion.
4. Helps doctors during manipulations.
5. Monitors the patient's condition after drug administration.
6. Conducts blood sampling from a vein for research and sends it to the laboratory.
7. Provides accounting and storage of drugs of groups A and B.
8. Provides the cabinet with a set of instruments, syringes and infusion systems, as well as the necessary medicines.
9. Maintaining accounting and reporting documentation of the manipulation cabinet.

*Hygiene of a manipulative nurse and requirements for her appearance*

A manipulative nurse, having come to work, changes into a clean robe or suit. He changes his outdoor footwear to slippers that do not make noise when walking and that are well amenable to disinfection. She puts on a cap and mask before entering the treatment room. Hair is neatly gathered under a hat. Nails should be cut short. Rings, bracelets are removed before starting work.

*Rules for laying a sterile table*

1. Treat the surface of the table with an antiseptic solution twice with an interval of 15 minutes.
2. Check the type of installation, the date of sterilization on the bix tag and the presence of the signature of the worker who performed the sterilization.
3. Put on a mask, wash your hands, put on sterile gloves.
4. Open the lid of the bix, check the sterilization indicators.
5. Use sterile tweezers to fold the corners of the diaper to the sides and close the edges of the bix with it.
6. Get a sheet folded in four layers, without touching non-sterile surfaces (including your dressing gown), cover the table surface with it so that the bottom edge of the sheet hangs 20-30 cm below the table surface.
7. Lift the two upper layers of the sheet and fold it like an "accordion" on the back of the table;
8. Take out the second sheet, folded in four or two, and put it on two layers of the first sheet (the second sheet should hang 5 cm below the edge of the table);
9. Close the second sheet with two layers of the first sheet;
10. Secure 2 layers of the top sheet and 2 layers of the inner one with sterile claws;
11. Lay out the sterile material or instruments on the inner surface of the second sheet;
12. Holding the pins in hands, close the sterile table so that the upper layers cover the inner ones.

**Parenteral Administration of Drugs**

Injection is the administration of drugs intracutaneously, subcutaneously, intramuscularly, intravenously, intraarterially, intracostally and into the spinocerebral channel, and in different cavities of a person. The nurse should master the techniques of injections. For drugs, recently, disposable plastic syringes of different volume are used — from 1 up to 20 ml; “Luer” and “Record” syringes were used earlier. In some cases a syringe-tubes (basically in war time) is used. For intravenous injections needles with the length of 5–6 cm and the opening of 0.3–0.5 mm are used. Needles with the length of 3–4 cm and an opening of 0.5–1 mm are used for subcutaneous in-jections, needles with the length of 8–10 cm and the opening of 0.8–1.5 mm are used for intramuscular injections. Syringes are stored in special cases, a brass mandrin should be on the tip of the needle. It is necessary to check the passability of needles before the injection. Syringes are assembled with the help of tweezers. The left hand takes the cylinder, the right one inserts the piston into the cylinder. The little finger of the left hand holds the piston, the right one with the help of tweezers puts the top on the needle. Medicines are collected from an ampoule which is hold with the 2–3 fingers of the left hand into a syringe. Before filling the syringe with the medicine, it is necessary to read the name of medicine on the ampoule. It is necessary to have two needles always: one for a set of medicines, the other one — for the injection. Medicines are collected into the syringe by suction, pulling the piston.

**Intracutaneous administration of drugs.** For this purpose it is better to use the anterior surface of the forearm. The needle enters only to the corneal layer of the
skin. It is possible to administer intracutaneously only 0.1 ml of solution. After administering, a knoll like lemon peel forms on the skin.

Subcutaneous introduction is applied for fast action drugs. The most convenient for hypodermic introduction are the following areas: external surface of the shoulder or radial edge of the forearm, infrascapular area, anterior external surface of the hip, lateral surface of the abdominal wall and the bottom part of the inguinal areas.

Intramuscular injections are done on the following areas: external top quadrant of the gluteal region (remember the gluteal nerve which passes in the internal quadrant of the gluteus), muscular hips (its external surface), abdominal direct muscles, etc.

Intravenous introduction of drugs. The techniques is similar to that of bloodletting. More often, for intravenous introduction the ulnar veins, less often — veins on the hand or subclavian veins are used. For administering a large amount of liquid disposable systems are applied. It is possible a jet introduction of liquid into the vein. Venesection is rarely applied now. It is already a small operation, and it is carried out by surgeons under operational conditions.

Determination of blood group with anti A and anti B monoclonal antibodies, or anti A and anti B celiclones

Anti A and anti B celiclones are used for ABO blood grouping as an alternative to the standard isohaemaglutination serum by way of detecting antigens A and B in the red blood cells by the anti–bodies contained in celiclones. «Celiclone» is a diluted ascitic fluid of mice carriers of hybridomas that are producing of IgM against antigens A or B. As distinct from the standard ABO-serum, a celiclone provides a quicker and more pronounced reaction of agglutination. The use of celiclone eliminates the risk of transmission of hepatitis B or C viruses or HIV. The grouping should be performed at 15-25 °C.

Procedure
1. Place big drops of anti-A and anti-B celiclones on a labelled plate or a flat plastic surface.
2. Put the drops of blood in question (which should be one-tenth as big in size nearby and mix using different sticks or different edges of the ground slide for each group).
3. Shake the plate slightly and observe for about 2,5 minutes (the reaction normally occurs within 3-5 seconds to form small red aggregates followed by flakes).

The following patterns of the reaction are possible
1. Negative agglutination with both anti A and anti B celiclones suggests that blood contains neither A- nor B-agglutinogens and thus the patient’s blood is of group I (0) (fig. 34, colour inset).
2. Positive agglutination with anti A celiclones indicative of A agglutinogens contained in the patient’s red blood cells. The blood is therefore of group II (A).
3. Positive agglutination with anti B celiclones. The red cells of the blood under examination contain B agglutinogens and are consequently of group III (B).
4. Positive agglutination with both anti A and anti B celiclones. The patient’s red blood cells contain A and B agglutinogens, which is suggestive of group IV (AB) blood.

**Questions for test control**

1. The manipulation room is:
   a) separate specially equipped room for carrying out various treatment and diagnostic procedures;
   b) separate specially equipped room for surgical operations;
   c) separate specially equipped room for dressings;
   d) separate specially equipped room for sanitary processing of patients;
   e) all answers are correct.

2. Manipulations that are carried out in the manipulation room:
   a) injections, determination of blood groups;
   b) hematoma puncture;
   c) putting medical cups, mustard plasters;
   d) therapeutic baths.

3. The area of the manipulation room should be:
   a) 10–15 m²;
   b) 15–20 m²;
   c) 20–25 m²;
   d) 30–35 m².

4. The air temperature in the manipulation room should be:
   a) 10–15 °C;
   b) 22–25 °C;
   c) 25–35 °C;
   d) 30–35 °C.

5. The manipulation room is designed to perform:
   a) all types of injections;
   b) intravenous drip infusions;
   c) taking blood tests from a vein;
   d) conducting all research and samples related to the transfusion of blood components and preparations;
   e) all answers are correct.

6. The preparation of the manipulation room is carried out by:
   a) ward nurse;
   b) nurse assistant;
   c) head nurse;
   d) manipulation nurse.
7. Sterile table in the manipulation room is covered:
   a) before starting work, on one shift;
   b) the night before;
   c) the table is set every 2 hours.

8. A manipulating nurse must change a medical gown:
   a) daily;
   b) 2 times a week;
   c) once a week;
   d) twice a day.

9. Which of the following manipulations are not carried out in the manipulation room:
   a) blood sampling from a vein;
   b) the introduction of drugs;
   c) puncture of the pleural cavity;
   d) determination of blood type;
   e) filling the systems for transfusion?

10. If the skin of the nurse’s hands is damaged during the manipulation of an HIV-infected person, it is necessary to:
    a) squeeze the blood out of the wound, treat the wound with a 5% alcoholic iodine solution;
    b) treat the wound with a 5% alcoholic solution of iodine;
    c) treat the wound with a 0.05% potassium permanganate solution;
    d) all answers are correct.

11. The current cleaning of the manipulation room is performed:
    a) before starting the work;
    b) once a week;
    c) at the end of the working day;
    d) in order to eliminate pollution arising in the work process;
    e) all answers are correct.

12. General cleaning of the manipulation room is performed:
    a) before starting the work;
    b) once a week;
    c) at the end of the working day;
    d) in order to eliminate pollution arising in the work process;
    e) all answers are correct.

13. The site for intracutaneous injections:
    a) a middle third of the anterior surface of the shoulder;
    b) a middle third of the posterior surface of the shoulder;
    c) a middle third of the anterior surface of the forearm;
d) middle third of the anterior surface of the hip;
e) all answers are correct.

14. During intracutaneous injection insert a needle from below upward at an angle of:
   a) $15^\circ$;
   b) $25^\circ$;
   c) $35^\circ$;
   d) $45^\circ$.

15. For subcutaneous injection of medical drugs, the needle insert at an angle of:
   a) $15^\circ$ into the base of the skin fold;
   b) $25^\circ$ into the base of the skin fold;
   c) $30$–$40^\circ$ into the base of the skin fold;
   d) $50$–$55^\circ$ into the base of the skin fold.

16. For subcutaneous injection, a single dose of medication should be no more than:
   a) 5 ml in solution;
   b) 10 ml in solution;
   c) 15 ml in solution;
   d) 25 ml in solution.

17. Sites for subcutaneous injections:
   a) a middle third of the back surface of the arm;
   b) a middle third of the anterior surface of the thigh;
   c) subscapular area;
   d) anterior abdominal wall;
   e) all answers are correct.

18. The maximal volume of drugs administered intramuscularly should not exceed:
   a) 5 ml;
   b) 10 ml;
   c) 15 ml;
   d) 20 ml.

19. When determining blood group with celiclones, the reaction of agglutination is negative with anti A and anti B celiclones. Therefore, the test blood belongs to the group:
   a) 0 (I);
   b) A (II);
   c) B (III);
   d) AB (IV).

20. When determining the blood group by anti A and anti B celiclones, look at the result in:
Control questions

1. What is a manipulation room?
2. Equipment manipulation room.
3. Responsibilities of a manipulative nurse.
4. Requirements for the hygiene of a manipulative nurse and her overalls.
5. Rules for preparing a sterile table in manipulation room.
6. How to draw medicine into a syringe?
7. Intradermal injection.
8. Subcutaneous injection.
9. Intramuscular injection
10. Intravenous injection.
11. Vein catheterization.
12. Intravenous drip of drugs.
13. Determination of blood group according to the AB0 system using monoclonal antibodies.
14. How to determine the Rh-factor?
15. Compatibility test on the AB0 system?
16. Biological test.
17. The types of cleaning the manipulation room.

Recommended literature

The basic (basic)

Additional
**TOPIC 3. Main duties and actions of the nurse in the dressing room of surgical department. Desmurgy.**

**Aim of the lesson:**
1. Know the structure of a clean and purulent dressing.
2. Know the organization of work in dressing rooms.
3. Know the types of cleaning in dressing rooms.
4. Know the sanitary and hygienic requirements for the personnel of dressing, dressing material, instruments, preventing the spread of nosocomial infection.
5. Be able to set a sterile table in the dressing room.
6. Be able to dispose of the used dressing material.
7. Be able to organize the care of patients with anaerobic infection.
8. Be able to apply different types of bandages.

**Sanitary-hygienic requirements in the dressing room**
A dressing room is specially equipped premises designed for carrying out dressings, examining wounds and various procedures held in treatment of wounds, to perform injections, punctures and small operations.

According to regulations the area of a dressing room per 1 table is 22 m², and per 2 tables – 30 m². Ration between square of windows to the floor should be 1:4. A dressing room should be well lit; windows usually face the north, northeast or northwest. For artificial lighting bulbs are set in the ceiling considering 500 W for 50 m². Above each dressing table a shadowless lamp should be set. Requirements for a dressing room should be the same as for an operating room (light room which walls and ceiling should be painted with oil paint or walls and floor should be tiled). In a dressing room cleanliness should be maintained.

A dressing room should be provided with central cold and warm water supply. The optimum temperature should be 18-20 °C. At least two sinks should be installed at a certain distance from the sterile table, usually near the front door. One of them is for hand washing, the other one is for tools. Wet cleaning of a dressing room is carried out in the morning before work, during dressings, after each patient and at the end of the work day, and the exposure of ultraviolet irradiation (quartz) should be made several times a day according to the set schedule. In big surgical departments there are usually two dressing rooms – for "clean" and "purulent" patients.

**Organization of work in a clean dressing room**
At the beginning of the work day a dressing along with an assistant nurse carry out morning wet cleaning of the room with application of quartz. After that the nurse then prescribes requirements (recipes) for the hospital pharmacy to replenish the stock of medication and dressing material. A hospital attendant takes to sterilization dressing boxes and takes back sterilized instruments, dressings, clothes.

Having received sterile products, a dressing nurse covers a sterile instrumental and physical table. The table for instruments and dressing material is covered in the same way as in the operating room.
Tools are brought by forceps. Dressing is carried out only with the help of tools. Tools are sterilized in the dressing room or in a specialized sterilization room.

In the morning a list of patients who were prescribed by a doctor to have dressings after the morning ward round. A dressing nurse determines priorities of dressings. In a clean dressing room at first puncture of joints, bone, soft tissue and spinal canal, then pleural puncture are performed. Then bandage of fresh postoperative wounds, removing stitches are carried out and then – bandage of other clean wounds.

**Features of care for patients with purulent pathology and organization of work in a purulent dressing room**

For patients with purulent wounds separate chamber or an isolated wing of the department, away from the operating unit should be provided. For such patients there is their own dressing room and these patients are served by a separate medical staff. If there is one dressing room, patients with purulent wounds are bandaged after clean dressings, and then the room is carefully processed and all equipment is washed by disinfectant solutions.

In purulent dressing rooms purulent wounds are bandaged, punctures and opening of abscesses and other manipulation on festering wounds are carried out. Medical personnel should strictly follow the rules of aseptic and antiseptic; carefully sterilize instruments to avoid further contamination of wounds by pathogenic microflora. Disposal of dressing material, contaminated with purulent discharge (cotton, gauze, etc.), is carried out by firing.

**Features of dressings and care for patients with anaerobic infections**

The source of anaerobic infections is sick people. The main route of transmission is contact. Infection can occur as a result of falling gas gangrene pathogen on damaged skin and mucous membranes of the soil, dirty laundry, clothing, and contaminated medical instruments. For the treatment of patients individual chambers are distinguished with a special entrance, separate from the operational and dressings ventilation system. Wall of rooms should be lined with tiles, the floor covered with linoleum or tile, which is easy for mechanical cleaning and disinfection treatment. Ultraviolet irradiator set is used at the rate of 1 irradiator per 30 m2. All surfaces are treated with 6% solution of hydrogen peroxide with 0.5% detergent 2 times a day, using personal protective equipment: gloves and a dust mask. The bed is laid with linen which was disinfected in accordance with the regime for spore forms of bacteria. Dirty linen before washing is disinfected by soaking and boiling it in a 2% solution of soda ash for 120 minutes after boiling. The patient is given individual items of daily use, which are also disinfected. Utensils after use are soaked in a 2% solution of sodium bicarbonate and boiled for 90 minutes. A surgeon and a nurse before entering to the operating room or operational room should wear a mask, shoe covers and oilcloth aprons, which are then thoroughly disinfected with a solution of 6% hydrogen peroxide with a 0.5% solution of detergent. After use the dressing material is collected in separate boxes, placed in autoclave for 20 minutes. and
Tools after use are dipped into a 6% solution of hydrogen peroxide with a 0.5% solution of detergent for 60 minutes. All surfaces of the premises after disinfection are washed with hot water and irradiated by bactericidal lamps up to 2 hours.

> Objects and equipment for dressing the wounds, affected by gangrene.
> 1. forceps
> 2. tweezers
> 3. scalpel, scissors
> 4. syringes, needles 2 pieces
> 5. a needle holder, needles, suture material.
> 6. antiseptics necessary for the treatment of wounds and surgical field
> 7. gauze wipes, turundas, balls, bandages
> 8. sterile linen for operation
> 9. clamps 3 - 4 pieces.

Succession of actions:
1. wide opening of the wound channel
2. excision of necrotic areas, removal of foreign bodies
3. additional cuts in the area of swelling ("stripe cuts")
4. careful hemostasis
5. open wound treatment with a wide use of aeration and oxidants (6% hydrogen peroxide solution, 0.1% solution of potassium permanganate, a mixture of ratio of 1: 1 solution of 6% hydrogen peroxide and 5% alcohol solution of iodine).

Duties of a dressing nurse
1. To carry out prescribed by a doctor-intern manipulations that a nurse can perform.
2. To accompany severely ill patients after performed manipulations to the ward.
3. To strictly follow the rules of aseptic and antiseptic.
4. To prepare for sterilization and to sterilize dressing material and instruments according to the existing instructions.
5. To provide systematic bacteriological monitoring of dressing material, instruments, a dressing room.
6. To provide systematic recruitment, registration, storage and control over the consumption of medicines, dressing material, instruments, linen.
7. To instruct junior medical staff of dressing room, to control their work.
8. To conduct accounting records.
9. To systematically improve own professional skills.
10. To participates in sanitary-educational work.

The technique of bandaging patients with clean operational wound
1. Removal of secondary dressing by a dressing nurse;
2. Removal of primary dressing is carried out by a surgeon in sterile gloves with sterile forceps, holding skin by spatula, forceps or a gauze ball;
3. If the napkins which are on the wound stuck to the wound, in no case one should pull them out sharply, because it causes pain and violates the integrity of granulation;

4. In such cases it is necessary to sprinkle the bandage with a sterile antiseptic solution (warm saline, 3% hydrogen peroxide solution, furatsilin and others);

5. After several such sprinkles the doctor tries to carefully remove the dressing material from the wound;

6. After removal from the wound napkins and tampons, toilet of skin around the wound is carried out (from the wound edges to periphery), skin is treated with a solution of iodine or antiseptic, then turn to manipulations inside the wound;

7. After the end of the manipulation primarily sterile bandage then secondary bandage are applied, which are fixed by plaster or bandage.

Techniques of removing stitches
1. Remove the old bandage, cover the wound with sterile primary bandage;
2. Carry out toilet of the skin around the wound;
3. The line of stitches and the skin around it are moistened with iodine;
4. Grasp one end of the thread with tweezers and pull it until the skin appears on the part of the stitch, which has been in the tissues;
5. By the tip of scissors or scalpel cut this white part of the thread;
6. The thread is removed with tweezers;
7. Scar is smeared again with a iodine solution;
8. A dry napkin is applied, fixing the gauze bandage or plaster.

Desmurgy
Desmurgy (from Greek desmos – dressing ergon – work) – science about bandages, their correct application and retention on the surface of the patient’s body. The purpose of applying bandages – retention of bandaging material on the surface of the body. The main type of the dressing material is gauze – cotton fabric with firmly attached filaments. For convenience of use in surgery bandages, napkins, balls, swabs, turundas of different sizes are made from gauze. Another type of dressings is medical cotton. It can be made from cotton and synthetic (viscose). Also absorbent cotton (white) and not absorbent cotton (gray) are produced. White cotton can be used for applying bandages in case when it is necessary to improve the outflow of the wound content. Grey wool is used for applying compresses because it prevents rapid evaporation of medicines and retains heat better.

Dressing material can be sterile and non sterile. Sterile material is applied directly on wounds or affected skin, non-sterile is used for fixing dressings on the necessary parts of the body of the patient.

Dressing material should be capillarity; hygroscopic; elastic; easily sterilized without losing their properties; be biologically inert (no irritating effect on the tissue of the patient).
Classification of bandages

Bandages are classified according to the following criteria: by type of dressing material, by purpose and method of fixation

Classification by type of bandaging material:
• bandages from gauze (bandage and non-bandage);
• cloth bandages;
• casts;
• splinting;
• special bandages (zinc-gelatin etc.).

Classification by purpose (depending on the function of the dressing):
• protection (aseptic) – for prevention of secondary infection of wounds;
• treating – to provide constant access to the wound of medicine that was placed on lower layers of bandages;
• hemostatic (compresses blood vessels);
• tracting (extraction of bone fragments);
• correcting (eliminating of deformations);
• occlusal (in case of open pneumothorax);
• compressing (prevention of thrombosis, inflammatory infiltrates).

Classification by means of fixation:
• adhesive (plaster, cleol, colloid);
• bandages;
• handkerchiefs.

Adhesive bandages are used mainly in limited damages and on areas of surgical wounds, regardless of location. Dressing material is fixated on the wound with glue BF-6, cleol, colloid. Cleol is special glue, which consists of rosin and ether. After application on the wound of sterile napkins directly on their edge a line of cleol 3 cm is applied. After 30-40 seconds stretched gauze that covers the perimeter including cleol is applied. It is smoothed and additional segments of gauze are cut off. The advantages of adhesive bandages: speed and simplicity of application, a small size of dressings that is convenient for the patient. Disadvantages: possible allergic reactions to skin adhesives; insufficient fixation on moving parts of the body; such bandages cannot be applied on the face and perineum, where skin irritation happens quickly.

Rules of bandaging

1. The patient is in the comfortable position so that free access could be provided from all sides to the area which should be bandaged;
2. Functional favorable position is chosen for the area for bandaging, in which muscles are most relaxed;
3. The person who applies bandages should be turned with his/her face to the patient, and watch the face of the patient to see if the bandage might cause some pain;
4. Bandage should be started from the bottom to up, at that the right hand unfolds the head bandage, and the left hand keeps spreading tours of the bandage;
5. Bandage is usually carried out in one direction, and each round of the bandage should cover the preceding half or 2/3 of its width;

6. Bandaging should be started with first two rounds which fixate the bandage;

7. The bandage end is fixated on the healthy side or in a place where the unit will not bother the patient;

8. The applied bandage should tightly hold the dressing material and not disrupt blood flow and movement (if possible);

9. After the application of the bandage it is necessary to pay attention to the color of the skin and peripheral arterial pulsation.

Questions for test control

1. Dressing rooms may be:
   a) conditionally clean;
   b) outpatient;
   c) purulent;
   d) postoperative.

2. Dressing rooms may be:
   a) conditionally clean;
   b) clean;
   c) outpatient;
   d) postoperative.

3. The dressing room area for 1 table should be:
   a) 12 m²;
   b) 22 m²;
   c) 32 m²;
   d) 42 m².

4. The ratio of window area to floor area in the dressing room should be:
   a) 1:1;
   b) 1:2;
   c) 1:3;
   d) 1:4.

5. The optimum temperature in the dressing room should be:
   a) 16–18 °C;
   b) 18–20 °C;
   c) 24–26 °C;
   d) 25 °C.

6. Duties of a dressing nurse:
a) to follow strictly the rules of aseptic and antiseptic;
b) to prepare for sterilization and to sterilize dressing material and instruments;
c) to provide bacteriological monitoring of dressing material, instruments;
d) to provide storage and consumption control of medicines, dressing material, instruments and linen;
e) all answers are correct.

7. Who prepares sterile table in a dressing room:
a) doctor;
b) nurse;
c) nurse assistant;
d) special worker;
e) all answers are correct?

8. In a clean dressing room can be performed:
a) bandaging the patient with a clean postoperative wound;
b) puncture of inflammatory infiltrate;
c) bandage to the patient with the wound after opening the boil;
e) all answers are correct.

9. In a clean dressing room can be performed:
a) bandage to the patient with the wound after opening the boil;
b) puncture of inflammatory infiltrate;
c) puncture of the knee joint in serous arthritis;
e) all answers are correct.

10. In a purulent dressing room can be performed:
a) removal stitches in the patient after herniotomy;
b) puncture of the knee joint with hemothrosis;
c) novocain blockade of the fracture site;
d) dressing a patient with bedsores.

11. In a purulent dressing room can be performed:
a) novocaine blockade in case of rib fracture;
b) surgical treatment of an infected wound;
c) primary surgical debridement;
d) removal of sutures after cholecystectomy.

12. In a clean dressing room can be performed:
a) the imposition of a secondary surgical suture;
b) early surgical debridment;
c) dressing a patient after opening the abscess;
d) opening phlegmon.
13. In a purulent dressing room can be performed:
a) cleansing enema;
b) diagnostic puncture of inflammatory infiltrate;
c) gastric lavage;
d) hyperbaric oxygenation.

14. Who prepares a sterile instrument table in the dressing room:
a) a dressing nurse;
b) a young dressing nurse;
c) a surgeon;
d) a duty nurse;
e) all answers are correct?

15. Stages of processing instruments after dressing:
a) disinfection;
b) presterilization processing;
c) packing;
d) sterilization;
e) all answers correct.

16. For disinfection of instruments in the dressing room can be used:
a) 5% alcoholic iodine solution;
b) sodium bicarbonate 5% solution;
c) 10% chloramine solution;
d) 6% hydrogen peroxide solution with 0.5% detergent.

17. Quality of presterilization processing is controlled by:
a) drip 2–3 drops of amidopyrin solution on the tool;
b) drip 2–3 drops of NaCl 10% solution on the tool;
c) drip 2–3 drops of hydrogen peroxide solution on the tool;
d) drip 2–3 drops of magnesium sulfate solution on the tool.

18. Reagents will be coloured:
1) pink with phenolphthalein (in the presence of detergent residues);
2) blue-green with amidopyrin (in the presence of blood residues);
3) blue-green with phenolphthalein (in presence of the rests of detergent residues);
4) pink with amidopyrin (in the presence of blood residues);
Choose the right combination of answers:
a) 1, 2, 3, 4; b) 2, 3, 4; c) 1, 4, 3; d) 1, 2; e) 3, 4.

19. Desmurgy is:
a) a science about splints, their correct application and retention on the surface of the patient’s body;
b) a science about working in the dressing room for nurses;
c) a science about bandages, their correct application and retention on the surface of the patient’s body;
d) a science about working in the dressing room.

20. Each subsequent layer of wrapped dressing must overlap the previous one:
a) $\frac{1}{2} - \frac{1}{3}$ of the dressing width;
b) $\frac{1}{4}$ of the dressing width;
c) $\frac{1}{3} - \frac{1}{5}$ of the dressing width;
d) $\frac{2}{5}$ of the dressing width;
e) all answers are correct.

Control questions

1. What is a dressing room?
2. What are the sanitary requirements for dressing room planning?
3. What are the types of dressing rooms?
4. What manipulations are performed in a clean dressing room?
5. Functions of purulent dressing room.
6. Sanitary-hygienic requirements for the dressing room.
7. Organization of work in a dressing room.
8. Duties of a dressing nurse.
9. The technique of bandaging patients with clean operational wound.
10. The technique of bandaging patients with purulent wounds.
11. Techniques of removing stitches.
12. Types of dressing material, its properties.
13. Classification of bandages.
15. Types of dressing material, its properties.
16. Methods of preparing dressing material for use.
17. Rules of applying cotton bandages on a head.
23. Gypsum technology.

Recommended literature

The basic (basic)


Additional
TOPIC 4. Feeding of the patients in the postoperative period.

Aim of the lesson:
1. Know the general principles of nutrition of surgical patients.
2. Know the types of nutrition of patients in postoperative period.
3. Know the drugs for enteral and parenteral nutrition of patients.
4. Learn the basic diets used in surgery.
5. Know the nutrition patterns after various surgeries.
6. Be able to feed the seriously ill patients with a spoon, drinker, nasogastric tube.

Nutrition is one of the most important physiological needs of an organism. It is necessary for building and permanent regeneration of cells and tissues; energy supply is necessary for covering energy expenditure; inflow of matters, from which different enzymes, hormones and other regulators of metabolic process and vital functions are generated. Metabolism, function and structure of all cells, tissues and organs depend on nutrition. On this ground, intensive therapy of any surgical pathology is impossible without wholesome food.

Nutritious insufficiency during critical situations is a particular problem. The development of hypermetabolism, hypercatabolism with damage of albumens, carbohydrates, lipids is typical for metabolic reply on an aggression of any aetiology, also the intensified consumption of carbohydrates and lipids supplies, the break-up of tissues albumens and the loss of weight is significant. As a result, the concomitant insufficiency develops. After being in a hospital during 10-15 days, approximately 60-64% of patients, especially those who withstood an operation or injury lose, on average, 10-12% of body mass. Initial nutrition irregularities, nutrition insufficiency of a patient and unfit correction of metabolic irregularities reduce the effectiveness of treatment dramatically, especially after the operative intervention. Elimination of nutritious insufficiency improves the results of treatment, reduces the quantity and severity of postoperative complications (from 46 to 17%) and lethality (from 11.7 to 6%), reduces greatly terms spent in hospital (to 25%) and the rehabilitation period, raises life quality indices of chronic patients, reduces twice costs of diagnostic and treatment and in 15-30% reduces consumption of expensive medication.

It is rather difficult to solve the problem of nutritious insufficiency treatment by means of dietotherapy, because from the hospital total caloricty ration, in fact, a patient assimilates only approximately 60%. A great role in insufficient assimilation of the hospital ration and in undernourishment progress belongs to the patient’s health condition - appetite loss, impairment of consciousness, fever, dyspeptic disorder, which lead to reducing virtual food consumption or to complete aversion to food. Besides, after surgery interventions, especially when they involve damages or functional defect of alimentary canal, a patient neither can nor wants, but also shouldn’t take usual food. During the period, when natural way of replenishment of essential nutrient deficit is impossible or limited, particular importance belongs to parenteral nourishment combined with treatment.
General principles of the patient’s nutrition after the surgical operation

A conducted adequate dietary treatment before and after an operation reduces complications chances and promotes a faster recovery. In the case of contraindications absence to ingestion, presurgical nutrition should create vitamins supplies in organism. A diet should contain 100-120 g of albumen, 100 g of adipose tissue, 400 g of carbohydrate. Energy value of food should consist of 2900-3000 kcal. Volume of liquid in the organism should be 2.2-2.5 litres. 3-5 days before an operation it is necessary to exclude food rich in cellulose, because it causes meteorism (beans, white cabbage, chiselly bread, millet, nuts, full-cream milk).

Nutrition during postsurgical period should:
- provide the partial load mode for target affected organs, especially after digestive organs surgeries;
- provide the metabolism normalization and rehabilitation of all organism functions;
- raise body resistance to all kinds of inflammations and intoxications;
- provide wound incisional healing.

After the abdominal operation starvation diets are often prescribed to patients. Liquid is administered intravenously, and mouth is only rinsed. Maximum sparing food (fluid, semi-fluid, grated) is prescribed step-by-step. It should also contain sufficient quantity of liquid, because such products assimilate the best. For prevention of meteorism a patient should exclude such food products as whole milk, concentrated sugar solution and cellulose. One of the most important tasks of medicinal nutrition is to overcome protein and vitamin deficiency during 10-15 days after an operation, which develops in great number of patients. The reason is hypo nutrition during first days, hemorrhage, tissue proteins decomposition, fever. That is why, it is necessary sometimes to shift the patient’s nutrition faster to biologically valuable food with the wide product list, but at the same time, doctors should take into account the state of a patient, his food intake and gastrointestinal digestion capability.

It is necessary to reduce a phenomenon of metabolic acidosis by way of an inclusion of dairy products, fruits and vegetables into a diet. It should be noted, that patients often lose a lot of liquid after an operation. Approximate daily necessity in this period is 2-3 liters if that is noncomplicated case, 3—4 liters in complicated case (sepsis, fever and intoxication), 4-4.5 liters for serious patients who have a drainage. When it is impossible to provide a natural nutrition for operated patient, in this case the parenteral (intravenous) or nasojejunal feeding should be prescribed. Highly-nourishing water dispersible concentrates are especially indicative for nasojejunal feeding or drinking bowl.

Nutrition types of the surgical patients

Nutrition of the surgical patients can be: natural, artificial, enteral and parenteral.

Natural:
• active - patients eat by themselves keeping normal regimen;
• passive - nurses feed patients who keep bed regime.

During feeding a nurse should help a recumbent patient to take a sitting or semisitting position, breast and neck should be covered by a napkin. It happens rather often, that serious and debilitated patients should eat small serving, it should be a fluid diet (thick soup, clear soup, jelly, milk and so on). A patient sips with the help of a feeding cup or spoon. The best time to feed a febrile patient is after amelioration and decrease of temperature trying not to interrupt their daytime sleep especially in the case of insomnia.

A nurse should be especially tolerant to anorexic patients or to those patients who even suffer from fastidium (for example, during malignant tumour). In such cases, it is important to pay attention to make food tasty, freshly prepared and favorite dishes of a patient also should be included. Food taking should be held under the appropriate conditions (cleanliness, neatness, absence of different revulsive moments).

Sometimes it happens, that natural feeding should be competed or entirely substituted by artificial feeding.

**Artificial feeding**

Artificial feeding is used when a patient can’t eat by himself or when natural feeding for whatever reason (serious, debilitating disease, preoperative assessment or postoperative period) isn’t enough. There are several ways of artificial feeding: by way of probe, which is input to the stomach; with the help of a PEG tube or a jejunal tube (an aperture surgically imposed in a stomach and a jejunum), as well as by means of parenteral administration of different drugs omitting digestive tract (from Greek para - near, entera - intestine). First two methods are often united in one notion of the probe or enteral feeding, because a probe is often used during application of a PEG tube or a jejunal tube.

**Enteral feeding**

Enteral feeding is a type of the nutrition intervention when nutrients in the form of special mixture are input with the help of peroral or nasogastric probe, nasojejunal catheter, PEG tube or jejunal tube or enema, when it is impossible to provide adequate caloric and flexible requirement of an organism by means of natural way during different diseases.

Enteral feeding is used when the functions of gastrointestinal tract are preserved, and it allows to use maximally and keep functional activity of intestine physiologically means, as a result enteral feeding has indubitable advantages in comparison with parenteral feeding.

Modifications of villous epithelium develop in an intestine, which is afunctional for a long time, in this case, a risk of bacterial translocation increases (microbial bodies penetrate from the lumen of the intestine into the free abdominal space and systemic blood).
A nutrient enema (NE)

A nutrient enema, also known as feeding per rectum, rectal alimentation, or rectal feeding, is an enema administered with the intent of providing nutrition when normal eating is not possible. NE has a very long history, emerging in the ancient world and developing throughout the common epoch. This history dates back as far as 3500 BC to the ancient Egyptians, Indians, and Chinese. Their medical practices were the first reports of enteral feeding therapy, provided via rectum with enemas of wine, milk, whey, wheat, and barley. A variety of different mixes have been used for nutrient enemas throughout the history. A paper published in Nature in 1926 stated that because the rectum and lower digestive tract lack digestive enzymes, it was likely that only the end-products of normal digestion such as sugars, amino acids, salt and alcohol, would be absorbed. A feeding enema did help keep President James Garfield alive for 80 days after he was shot by Charles J. Guiteau in 1881. He received a steady diet of beef bouillon, egg yolks, milk, whiskey, and drops of opium through his rectal cavity. Garfield died anyway, but he wouldn’t have lasted nearly as long without all the egg yolks, liquor, and drugs they pumped up his rectum. The famous German surgeon T. Billroth appointed a nourishing enema that consisted of strong coffee with cognac in the first days after the operation of the stomach resection.

Parenteral nutrition

The obligatory balance for the normal functioning of the organism between apolexis and synthetic process gets broken either by enhanced metabolism, or by partial or complete inability to normal income and conversion of nutrients for various reasons. That may be found by almost all common diseases and injuries, followed by more or less expressed protein deprivation, fluid and electrolyte misbalance and other kinds of exchange. Although the protein deprivation is almost always followed by disorders and other sorts of exchanges the protein deprivation is still a critical factor in the complex of disorders, by the effect of the protein as the plastic material that is required for neogenesis, for enzyme, hormones, immune bodies and for other biological substances syntheses.

For many patients the protein deprivation is caused by the loss of large amount of protein and that is the result of proteolysis in tela in cases of burn disease, severe traumas, febris, septic diseases, malignant tumours and in case of post-surgery period after serious surgical procedures.

Invariable indications for parenteral nutrition:

1. Preoperative preparation of patients who have the damages of pharynx, esophagus, stomach, when they have an obstruction for food to get through.
2. The first 3-7 days after pharynx surgery and digestive system surgery.
3. The first few days after the major thoracic organs and the retroperitoneal space surgeries.
4. Serious injuries and severe purulent-septic processes.
5. Severe postoperative complications (peritonitis, abscess, etc.).
6. Terminal states of life support.

**Medications for parenteral nutrition**

Medications for parenteral nutrition should be classified due to their effect on the human body: nitrogen sources, energy sources, medications for fluid and electrolyte balance.

*The hydrolysate protein medications:* casein hydrolyzate, hydrolysine, aminopeptid, aminokrovin.

*The amino acid formula:* polyamine, alvezin, aminol, infezol.

*The fat emulsions:* intralipid, lipofundin.

*The sugars, polyhydric alcohols:* glucose, sorbitol.

*The electrolyte solutions:* trisol, Ringer’s solution, laktasol, etc.

The parenteral nutrition should be measured taking into account the needs of the organism, in other words it should be balanced.

**The diets used for feeding of surgical patients**

The number of diets that are applied in the health care centre depends on the local conditions and, especially, on the sort of patients. In a general surgery department diets that are used most of the time are: N° 0-a, N° 0-b, N° G-in, N° 1-well, N° 1, fib 5-well, Ne 9, N» 11, Ns 13, Na 15,

The “zero diet” is prescribed for a patient who had a gastrointestinal tract surgery, and for patients with somnolency (like traumatic brain injury). This diet is attenuated for digestive organs, it prevents meteorism and provides nutrition when the intake of ordinary food is difficult or impossible to conduct. Sometimes the diets No 0-a and Ne 0-b are called surgical - Ne 1-a and Ne 1—b.

*Diet № 0-a* is usually prescribed for the 2-3 days. It includes gelatinous and liquid dishes, 1.8-2.2 liters of free liquid and food at the temperature under 45 °C, Food should be consumed 7-8 times a day with no more than 200-300 grams at a time. A fat-free broth, rice water with butter, berry jelly, strained compote, brewed for tea rose hips with sugar, fresh fruit and berry juices, tea with lemon. After 2-3 days when a patient has got better it is allowed to add a boiled egg and 50 ml of cream to the menu. Dense and puree meals, soft drinks, whole milk are forbidden.

*Diet № 0-b* is prescribed after 2-4 days after the diet Ns 0-a. Thin oatmeal, buckwheat, and rice porridge, cooked with meat broth or water, mucous cereal soups with vegetable broth, steamed egg white omelet, steamed lean fish souffle' or puree or steamed meat souffle’ or puree are added to the previous diet. Food is given not more than 350-400 g per one meal 6 times a day. Diet № 0-b carries the previous diet and serves for an attenuated turning to a physiologically complete eating. This diet should include cream soups and mashed soups, steamed dishes made from mashed boiled meat, chicken or fish, fresh cottage cheese, sour milk drinks, mashed vegetable and fruit purees, 50—75 g of white breadcrumbs. It is allowed to add some milk to the porridge. The food is given 6 times a day.

*Diet № 1-a* is prescribed for the 6-7th days after the operations on the stomach. It is oriented on sparing the gastrointestinal tract mechanically, chemically and thermally in conditions of bed rest. For this diet food is cooked in liquid and semi-
liquid form and taken in regular portions every 2-3 hours. For cooking dishes (steam souffle or puree) low-fat fish or medium-fat meat are used. Souffle from freshly made cottage cheese is limited. The patients consume whole milk, cream, unsalted butter, milky liquid cereals from grated cereals or baby food, homogenized vegetables, milk soup, mucus broths on milk, jelly, jelly from non-acidic berries, hard tea, wild rose tea. Substances that stimulate the secretion of the stomach, hot and cold dishes, including cheese, sour cream, plain curd, bread, flour and confectionery, fruits and berries in raw condition, sauces, spices, coffee, cocoa, carbonated drinks are excluded.

**Diet № 1** is prescribed after operations on the stomach as a transitional diet from diet 1-a to physiologically nutritious diet. It is designed to reduce the inflammatory reaction and mucosal healing by limiting thermal, chemical and mechanical stimuli. Chemical composition and energy value of this diet is physiological. Dishes are cooked mostly in grated form, water-based or steamed. For cooking, low-fat meat and fish are used. It is allowed to use steamed chops, cues, souffle, mashed potatoes, zrazas, beef stroganoffs, and vegetable broth jellies. Such dairy products as non-acid wiped cottage cheese, sour cream, cream cheese, dumplings, cheese cakes, rather watery milk porridge, pudding, steamed eggs or scrambled eggs are recommended. Dried wheat bread or yesterday’s bread, boiled potatoes, carrots, beets, vegetable soup, sugar, honey, fresh ripe berries and fruits, weak cocoa, coffee with milk, fruit and berries juices are allowed. Too hot and too cold dishes are not allowed, also almost all sausage products as well as spicy and salty foods, strong broths, smoked foods, sour and unripe berries and fruits, chocolate, ice cream, kvass, black coffee are not allowed.

**Diet № 5-a** is used in cases of the acute cholecystitis after 37 days from the start of the disease, during the 5 or 6 day after the surgery on the bile passages and in cases of the acute pancreatitis. Mechanically and chemically gentle food sustain functional rest for all the digestive organs. Food should be cooked or creamed, it should be served preheated. There should be 5-6 meals per a day. Lean meat or fish in the form of smooth, low-fat curd, sour cream (it shouldn’t be very sour) and cheese can be consumed. It is allowed to eat steamed scrambled eggs, porridges with half milk and half water, cooked pasta, white bread, biscuit (butter biscuit isn’t allowed), mashed potato, milk jelly, strained dried fruits, honey, sugar, tea with milk or lemon, sweet fruit and berry juices, tomato juice, rose hips tea. It isn’t allowed to consume products, which are extractives rich, row cellulose, fat and fried meals, smoked products, new and rye bread, rich and flaky dough, mushrooms, cold snaps, chocolate, ice cream, spices, cacao, black coffee, carbonated and cold drinks.

**Diet № 9** is prescribed for those, who have diabetes mellitus. It helps to normalize carbohydrate metabolism. During this diet energy value is reduced gently by means of reducing carbohydrates and lipids content in food. Sugar and sweets are excluded from the nutrient budget, instead of them alternate materials, such as sodium chloride can be used. Lard sorts of meat and fish, brined cheese, rice, durum semolina and pasta, products made of rich and flaky dough and pickled
vegetables, grape, raisins, banana, sugar, honey, jam, candy, ice-cream, sweet juice aren’t allowed in terms of this diet.

_Diet №11_ is prescribed for those, who have emaciated organism after surgery or traumas in the case of absence of alimentary system disorder. It helps to build up body defenses and to improve nutrition conditions. Products needed for this diet are rich in proteins, vitamins, minerals. Cooking and food temperature is standard. There should be 5 meals per a day, the quantity of free fluid shouldn’t be more than 1.5 litre. Recommended list of products is various, beginning with meat and fish plates and ending with different starchy foods. The exception is very lardy meat and poultry, fats of mutton and beef, hot and fat sauces, cakes and mini gateau with a big amount of cream.

_Diet №15_ is used in case of different types of disorder, which needn’t special medical dietary regime, and serves also as a transitional phase to normal nutrition after using other diets. Its purpose is to supply a patient with physiologically adequate nutrition. The food contains proteins, lipids and carbohydrates in the quantity which is needed for healthy person, who isn’t involved into physical activity, and vitamins should be consumed in increased amount. Cooking and food temperature is standard. The free fluid isn’t limited. There should be 4-5 meals per a day. Daily consuming of cultured milk foods, fresh vegetables and fruits, juices, rose hips tea is recommended. Spices, lardy sorts of meat, lard of beef, mutton, pork should be excluded. After several surgical interferences and during several diseases natural food intake is impossible. In such cases it is better to use artificial feeding: orally (with the help of probe or stoma), parenterally or in a combined way.

_The feeding of critically ill patients_  
The feeding of critically ill patients requires a special approach and includes some difficulties due to the decrease in appetite and weakness of the masticatory and swallowing movements that appear due to the limitation of the motor activity of this kind of patients. In such cases, the patient needs to be fed more often, in small portions, with a spoon. In this diet allowable and prohibited foods should be considered. Thick food should be diluted with milk, broth or juice and after ingestion allow the patient to drink after from an appetizer or spoon. Feeding of the patient is necessary in quiet atmosphere, without distracting his or her attention, for example, by light stimuli or by conversations. Feeding of the critically ill patients is carried abed. To make this the patients should have sitting or semisitting position, or the head of a patient should be a little bit lifted on a hand of a nurse. While feeding any hurry is allowed, otherwise the patient can choke. It is important to ensure that food is not too hot or too cold. The number of feedings is usually increased to 5-6 times a day with a relatively small amount of food at one time.

_Feeding of critically ill patients_  
• Help the patient to take a comfortable semi-sitting position in bed, by placing an additional pillow. Wash his or her hands. Prepare a bedside table. Give the patient time to prepare for meals.  
• Cover the patient’s neck and chest with a napkin. Hot dishes should be checked if they are not too hot by dripping a few drops on your wrist.
• To feed the patient with spoon-food, use a spout cup (you can use a small teapot).
• Semifluid food is given to the patient with a spoon.
• It is necessary to discuss with the patient before the feeding, in what sequence he will take food. Ask the patient not to talk while eating, because during the conversation, food can get into the airways.
• Do not insist the patient to eat the entire amount of food you cooked. After a short break, warm up the food, continue feeding.

**Feeding of critically ill patients with a spoon and with a spout cup**

- Warn the patient 15 minutes before bringing food, get his or her consent.
- Ventilate the room. Prepare a bedside table.
- Raise the head edge of the bed (put an additional pillow under the head and back).
- Help the patient to wash his or her hands.
- Cover the patient’s chest with a napkin.
- Wash the hands. Bring the patient food (the temperature of hot dishes is 50 °C).
- Feed the patient slowly: call each dish offered to the patient; fill with 2/3 spoon with soft food; touch the spoon of the lower lip so that the patient opens his mouth; touch the spoon to the tongue, leaving food in the mouth; remove an empty spoon; give time to chew and to swallow the food; offer a drink after a few spoons of soft food; attach the spout to the lower lip; pour in small portions.
- Wipe (if necessary) the patient’s lips with a napkin.
- Ask the patient to rinse the mouth with water from the drinker after eating.
- Remove dishes after the meal and leftovers of it from the patient’s room.
- Remove the additional pillow and give the patient a comfortable position.

  If possible, give the patient an individual set of dishes, which, after feeding, should be cleaned from the food residues and washed with a cleanser, then disinfected.

**Tube feeding**

Patients in unconscious state or for the patients with mental disorders (who refuse to take food), as well as patients with traumatic injuries of the oral cavity should be fed with a tube. The children of a deep prematurity are also fed so when they lack sucking and swallowing reflexes.

For the tube feeding, prepare a thin gastric tube without olive, a funnel with a capacity of 150-200 ml, a Janet’s syringe and 1-2 glasses of liquid or semi-liquid food.

The tube, funnel and syringe must be sterilized by boiling and cooled up to the temperature of the patient’s body. The tube should be inserted through the nasal passage. Before the inserted tube nasal passages should be examined, cleared of crusts and mucus; the rounded end of the tube is to be lubricated with glycerol.

When the tube reaches the posterior wall of the oropharynx, the patient (if conscious) is asked to take a swallowing movement or carefully, pushing the index finger through the patient’s mouth, gently press the probe toward the back wall of
the pharynx, pushing it further along the esophagus, bypassing the larynx and trachea.

When the tube hits the larynx and trachea, it usually causes wheezing stenotic respiration and coughing. In this case, the probe should be a little pulled back, then let the patient calm down and, as it just have been described, gently move the probe along the esophagus into the stomach (approximately to 35-45 cm, it depends on the patient’s body height). To make sure that the probe does not hit the trachea, a piece of cotton wool or tissue paper is brought to its outer end. If cotton wool or paper does not move synchronously with the patient’s breathing, the food can be inserted into the tube.

The food should be poured in the funnel in small portions or slowly, injected through the tube using a Janet’s syringe stop-and-go. The food for one insertion at a time should be about 250 ml, the frequency of feeding should be equal 3-4 times a day. The liquid food inserted through the tube must be prestrained through gauze and heated to a temperature of 40 °C. During feeding, you must be ensured that the lumen of the tube is not filled, and regularly “wash” it with tea, juice or broth. After feeding, 20-40 ml of warm water is to be passed through the tube.

Hygiene of the patient’s nutrition

When the patient enters the hospital, he or she should be informed about the rules for storing food. For this purpose, lists of authorized (indicating their limiting number) and forbidden for the transfer of products are posted in the places of reception of the transfer and in the offices. These provisions are regulated in accordance with the prescribed diet and sanitary-hygienic regime of the medical institution. Food products for patients are transmitted within cellophane bags with the patient’s last name, first name, patronymic and the date of transfer. Each refrigerator and bedside table in the hospital unit should be daily checked for the spoiled food according to the rules and terms of storage of the products. Food products are withdrawn and sent to waste in cases when the expiration date has passed, if stored in a refrigerator without cellophane packages and without indicating to whom the food belongs and also if there are signs of spoilage.

Questions for test control

1. What is parenteral nutrition:
   a) nutrition through a gastric tube;
   b) the introduction of nutrients into the bloodstream;
   c) nutrition through the intestinal fistula bypassing the esophagus and stomach;
   d) nutrition with nutritional enemas;
   e) nutrition with a specially selected diet for maximum gastrointestinal tract sparing?

2. What can be used for parenteral nutrition:
   a) sterile bouillon;
   b) solutions of amino acids;
c) sterile vegetable oil;  

d) 5% sodium chloride solution?

3. Artificial nutrition of patients through a nasogastric tube is used in all cases, except:
   a) for burns and tumors of the esophagus;  
   b) for swallowing disorders;  
   c) for jaw fractures;  
   d) in an unconscious state.

4. Artificial nutrition of patients through a gastrostomy is used:
   a) for swallowing disorders after disorders of the cerebral circulation;  
   b) after esophagus surgery;  
   c) for injuries of the jaw;  
   d) in cases of refusal of food for mental illness.

5. Distribution of food in the surgical department performs:
   a) an assistant of a nurse;  
   b) department barmaid;  
   c) a waiter;  
   d) a doctor on duty;  
   e) a head nurse.

6. Enteral nutrition is carried out:
   a) through a gastric tube;  
   b) through intestinal intubation;  
   c) parenterally, through a catheterized central vein;  
   d) when it is impossible to feed through the mouth;  
   e) no correct answer.

7. Enteral nutrition is carried out:
   a) when it is impossible to feed through the mouth;  
   b) through intestinal intubation;  
   c) parenterally, through a catheterized central vein;  
   d) with gastrostomy.

8. For enteral nutrition use:
   a) mixtures of liquid products;  
   b) sparkling water;  
   c) smoked meat products;  
   d) pickled products;  
   e) spices.

9. For enteral nutrition use:
   a) sparkling water;
b) chopped meat;  
c) smoked meat products;  
d) pickled products;  
e) spices.

10. A seriously ill patient can be fed with:  
a) circles;  
b) forks;  
c) spoons;  
d) bottles.

11. How much protein should a patient's diet contain:  
a) 50–70 g;  
b) 80–100 g;  
c) 100–120 g;  
d) 120–140 g;  
e) no correct answer?

12. How much protein should a patient's diet contain:  
a) 50–70 g;  
b) 20–40 g;  
c) 200–220 g;  
d) 300–540 g;  
e) no correct answer?

13. How much lipid should a patient's diet contain:  
a) 70 g;  
b) 100 g;  
c) 120 g;  
d) 140 g;  
e) no correct answer?

14. The volume of fluid for the body in one day should be:  
a) 1.0–1.2 litres;  
b) 1.2–1.5 litres;  
c) 2.2–2.5 litres;  
d) 3.2–5.5 litres;  
e) no correct answer.

15. The daily fluid requirement in patients with sepsis and fever is:  
a) 1.0–1.2 litres;  
b) 1.2–1.5 litres;  
c) 2.2–2.5 litres;  
d) 4–4.5 liters;  
e) no correct answer.
16. Medications for parenteral nutrition:
a) amino acids;
b) polyamine;
c) aminol;
d) infezol;
e) all answers are correct.

17. Diets that are prescribed to patients with diseases of the gastrointestinal tract except:
a) No 1;
b) No 2;
c) No 7;
d) No 5.

18. Diet No 5 is characterized by:
a) any food with a restriction of fats and smoked meats;
b) restriction of proteins and carbohydrates;
c) restriction of fats and smoked meats, exclusion of fried foods;
d) the exclusion of proteins, animal fats, salt;
e) restriction of fats, proteins, fluids.

19. The patient is 2 days in the surgical department with a diagnosis of destructive pancreatitis. What nutrition should be prescribed?
a) hunger;
b) parenteral;
c) tube;
d) diet No 1a.

20. In biliary tract surgery (cholecystectomy, etc.) a diet should be:
a) during 1–2 days – hunger; on the 3–4th day – diet No 10;
b) during 1–2 days – hunger; on the 3–4th day – diet No 5;
c) during 2–3 days – hunger; on the 3–4th day – diet No 0;
d) during 2–3 days – hunger; on the 3–4th day – diet No 15.

Control questions
1. What are the main requirements for feeding patients during postoperative period?
2. What types of food do you know?
3. What is parenteral nutrition and when it should be done?
4. What are the preparations for parenteral nutrition?
5. What kinds of surgical diets are mostly used? Describe them.
6. What kinds of food should be provided for the patients with resect stomach surgeries?
7. What kind of food should be provided for the patients with resect esophagus surgeries?
8. Describe the diet for the patients with intestine surgeries.
9. Describe the diet for patients after biliary tract surgeries.
10. Describe the diet for patients after rectum surgeries.
11. Describe the peculiarities of feeding critically ill patients.
12. What are the methods of artificial feeding postoperation patients?
14. Nutrient enemas. Which products may be used for feeding through enema?
15. What are the rules of food storage for patients?

Recommended literature

The basic (basic)


Additional

TOPIC 5. Features of caring for elderly and senile surgical patients, seriously ill and agonizing. First aid for patients with terminal conditions

**Aim of the lesson:**
1. To study the features of the course of the postoperative period in elderly and senile patients.
2. Know the rules of preparation for surgery in elderly patients.
3. To learn the peculiarities of caring for elderly and senile patients in the postoperative period.
4. Know the general rules of caring for seriously ill patients.
5. Know what terminal states are and their signs.
6. Learn the rules of cardiopulmonary resuscitation.
7. Know the rules for ascertaining death and the rules for handling a corpse.

Aging is a universal endogenous destructive process that manifests itself in an increased probability of death. Not being a disease, aging creates the preconditions for the development of age-related pathology. The incidence rate in the elderly, compared with young people is 2 times higher, in old age - 6 times. This group of patients is prone to complications, so from the first day after surgery, preventive measures are taken to prevent them: elevated position in bed, early return, alternating jars of mustard, breathing exercises that provide good drainage of the tracheobronchial tree. Care for critically ill patients includes a comfortable position in bed, timely change of bedding and underwear, prevention of bedsores, treatment of bedsores in their presence, care for the mucous membranes of the nose, mouth, treatment of eyes and ear canals, etc.

**Features of patients of different ages**

Asking for help, ill patients trust us; let us take care of their lives in hope of recovery. It is important to justify this trust, to ensure normal conditions for patient’s treatment. Often depressing effect on the patient can be produced by disadvantages in sanitary condition and hygiene treatment department: choking in wards, crowded, unpleasant odors, lack of a regular bath or shower, spend time outdoors and so on.

While distributing patients to wards it is necessary to avoid the traumatic impact of severely ill patients on other patients. It is unacceptable to place into multi-chamber wards patients with asthma or other severe diseases, for such patients cause anxiety, sleep disorders and lack rest among neighbors in the ward.

Sharply negative impact on the psyche and emotional sphere of patients is made by inept or careless performance of diagnostic and therapeutic procedures, inattention to patients, ignorance of their requests.

The attitude of the patient to reality changes during illnesses. Some patients “become too secluded”, fall into the hands of worries, the range of their interests sharply narrows, they are taciturn, gloomy, sluggish, secretive.

An important part of deontology is the attitude of patients to medical personnel. It happens that some patients lack respect for the junior medical stuff,
refer with unsubstantiated requests and sometimes can be quite rude. In such cases, a calm and balanced approach should be considered, without any threats; the patient should be explained that his/her behavior creates a nervous atmosphere in the department, and hurts others sick patients. It is clear how difficult it is to endure unjust claims made by capricious patients, rude, ill-bred people, but exposure and professional duty should help the nurse to stay calm and delicate.

They should remember that patients often cannot objectively evaluate their condition. We need to try to understand the patient’s insight into his/her state of mind and establish a contact with him/her.

In conversations with patients who actually suffer from incurable diseases benevolent lie should be used leaving at least some hope for recovery.

The behavior of the nursing staff should be regulated by the following deontological principles:

- never refuse to help the patient;
- cause no psyche trauma to the patient (distrust, rudeness, threats);
- try to relieve the patient from physical pain;
- do not leave without help even the terminally ill patient;
- to focus patients of working age on social and labor rehabilitation.

When working with the elderly and old patients medical workers should take into account the features of their age. Remember that at this age physiological functions of the body, vision, hearing, and deterioration of memory are reduced, vital interests are narrowed. In these patients, the course of many diseases can be vague, but there are periods of sudden deterioration. So, sometimes it is very difficult to work with elderly patients. Assistant nurse should recommend them to move more, to help patients care for themselves, and if necessary to carry out timely hygienic measures in bed, to establish constant care and monitor the deterioration of their condition.

Regarding elderly and old people an assistant nurse should show emphasized respect, maintain a sense of dignity, be able to listen to their self-esteem, be able to listen to older people and to establish in the patient the position on improving the state of the health.

The terminal state is determined as the transitional state between life and death, when by virtue of different reasons there is so expressed violation of functioning of the basic vitally important systems, that the organism of suffering or sick man is unable to overcome these violations and single-handed necessarily ends with death. Reasons which result in development of the terminal state can be different on character both acute, sudden (sinking, defeat an electric current, but other), and comparatively gradual (heavy, of long duration diseases are in the final stage).

Any terminal state, not because of reason of origin, is characterized the critical level of defeats of vital functions of organism: breathing, cardio-vascular system, metabolism, but other, up to the stop of work of heart. In his development select the followings stages: preagonal state, terminal pause (marked not always), agony, clinical death. Biological death which is irreversible the state comes after
clinical death, when proceeding in all functions of organism sick is already impossible.

Preeagonal state. Consciousness is acute low-spirited or absents. Skin covers are pale or cyanochroic. AP progressively goes down to the zero, a pulse absents on peripheral arteries, but yet stored on sleepy and femoral arteries. On the initial stages tachycardia is marked, with a next transition to bradycardia. Breathing quickly passes from tachy- in bradyform. Barrel reflexes are violated, can appear pathological. Weight of the state is quickly worsened increasing oxygen голоданням and by heavy metabolic violations. It is especially needed to underline central genesis of these violations.

A terminal pause is not always. Clinically shows up the stop of breathing and periods of asystole from 1-2 to 10-15 seconds.

Agony. This stage is the predecessor of death and characterized the last displays of vital functions of organism. At this period of dying the regulator function of higher departments of cerebrum and management of vital functions processes is stopped begins at primitive level under control boulevard centers. It can cause the brief activating of vital functions: some getting up of AP, brief appearance of sine rhythm, the signs of consciousness are sometimes marked, however to provide the full value of breathing and work of heart these processes do not can, and the next stage – stage of clinical death comes very quickly.

Clinical death – to reverse the dying stage, transitional between life and death. The operation of heart and breathing decides on this stage, all external signs of vital functions of organism disappear fully, but a hypoxia did not yet cause irreversible changes in organs and systems, most to it sensible. A period is given on the average spread not more than 3-4 minutes, maximum 5-6 minutes (at the normal or enhanceable temperature of body of man).

Biological death comes right behind clinical and characterized that the irreversible changes of organs and systems come on a background ischemic damages. Its diagnostics is executed on the basis of presence of signs of clinical death with the next joining of early, and then late signs of biological death. To the early signs of biological death take drying out and dimness of cornea and symptom of «eye of cat» (to define this symptom, it is needed to squeeze an eyeball; a symptom is considered positive, if a pupil is deformed and stretches in length). Of a corpse spots and of a corpse stiff in death attribute to the late signs of biological death.

Resuscitation (reanimatio; re- + Latin animatio – animation) – revival of an organism. Resuscitation is a system of urgent measures, which are performed in order to resuscitate from the terminal state and further life support. The tasks of a resuscitator is to restore and maintain cardiac, respiratory and metabolic functions. In case of a sudden cardiac arrest resuscitation measures may be effective while maintaining compensation abilities of an organism. If the cardiac arrest occurred against the background of a serious incurable disease, when an organism compensation abilities are completely exhausted, resuscitation will be ineffective.
Basic Life Support (BLS). Basic life support includes airway breathing and circulation, maintaining blood circulation and external respiration. All mentioned above is performed without use of special equipment, except personal protective equipment. Basic life support can be provided by both doctors and non-medical workers who have received special training.

Advanced Life Support (ALS). Specialized resuscitation measures that should be performed by a qualified and trained medical professional with adequate equipment and medications.

Basic resuscitation measures
Basic resuscitation measures are presented in accordance with the 2015 revised standards adopted by the European Council of Resuscitation (ERC) and the American Cardiac Association (ACA), and have the following sequence:

Make sure you, the victim and any bystanders are safe.
It is necessary to approach the victim cautiously, being convinced of own safety and safety of others. Keep in mind the dangers of traffic, electric shock, falling debris, aggressive participants of the event.

Check for consciousness.
Check the reaction of the victim by loudly asking them “Are you all right?” and slightly shaking by the shoulder.

Call for help of bystanders.
You must inform others that you have been trained to provide first aid and, by contacting any person from the crowd, ask for their help and give them direction.

Open the airways. A person without consciousness has impaired airway obstruction that occurs as a result of falling back of the tongue. Turn the patient onto his back if necessary. Place your hand on his forehead and gently tilt his head back. With your fingertips under the point of the patient’s chin, lift the chin to open the airways.

Check for breath (I see, I hear, I feel).
It is necessary to get closer to the victim’s face and look at the chest. At the same time, try to hear the noise of breathing or moaning, feel the warmth of the air that is exhaled by your cheek and see how the chest rises and falls.

It should take no more than 10 seconds to determine the presence of breathing.
If the victim is unconscious but breathing, it is necessary to move him to a stable position.

Move the victim to a stable position.
1. The hand of the victim, located closer to a rescuer, should be placed along the torso with the palm up.
2. The other arm should be bent at the elbow joint and the back of the palm rested on the opposite cheek of the victim.
3. The leg of the victim, located farther from a rescuer, should be bent at the knee at right angles.
4. Pressing the victim's palm against his cheek, at the same time grasp the bent leg under the knee and, using it as a lever, turn the injured person on his side to face the rescuer.

5. Position the leg bent at the knee at right angles.

6. It is necessary to check the presence of self-breathing in the victim.

After moving to a stable position it is necessary to call an Ambulance and monitor the vital signs of the victim.

**Call for emergency medical service.**

If the victim is unconscious and is not breathing, it is necessary to call an emergency medical service.

*An emergency call* is a message about the emergency condition of a person and the place of the event and / or application about the need for emergency medical care using a single emergency number 103 or the emergency number of the emergency system for population – 112.

If there is an assistant, ask him to call.

If there is no assistant, you yourself should call for help. When calling it is advisable to use «hands free».

During the call, you must give the report about the victim: he is unconscious, not breathing, name the location of the event, indicate that cardiopulmonary resuscitation has been started, answer the dispatcher's question.

In the absence of breathing or uncertainty about its presence you should begin cardiopulmonary resuscitation (CPR) immediately.

The ratio of chest compressions to artificial breaths is 30:2. Resuscitation should be started by compressing the chest. The compressions rate must be 100–120 compressions per one minute, at the proper depth of 5–6 cm. The chest must be allowed to fully recoil between each compression, while trying to minimize breaks between compressions.

When performing artificial lung ventilation, it is required to perform inhales with 1 second duration, exhaling the volume of air, sufficient for visible expansion of the chest.

You should not stop performing indirect cardiac massage for more than 10 seconds.

**Application of automated external defibrillator (AED).**

If there is an automated external defibrillator nearby, the rescuer should immediately bring it or ask an assistant to do so, while continuing indirect cardiac massage and artificial lung ventilation (or cardiac massage alone for the impossibility of artificial ventilation performance).

The AED must be turned on and the voice commands are executed. Some AEDs turn on automatically when opened, others after pressing the button.

It is necessary to expose the chest of the victim, after that attach the AED pads to the chest and wait for the AED to analyze heart rhythm. One pad is placed on the upper right chest below the right clavicle to the right of the sternum, place the other pad on the left side of the chest on the mid-axillary line a few inches below the left armpit. During heart rhythm analysis it is necessary to stop the chest compressions and not to touch the victim.
If, after heart rhythm analysis, there is a need for electrical defibrillation (defibrillation rhythm), the rescuer should make sure no one touches the victim ("Stop resuscitation, discharge!"), and following the command of the AED press discharge button for defibrillation (completely automatic AED will perform the discharge on its own).

Immediately after defibrillation, you need to resume performing CPR in the ratio of 30:2. Two minutes later the defibrillator automatically re-analyzes the heart rhythm of the victim. The number of defibrillations is unlimited.

If after the analysis of the heart rhythm another discharge is not required, it is necessary to immediately continue CPR in the ratio of 30:2 by voice and visual commands of AED. Two minutes later, the AED will re-analyze the heart rhythm and decide on the need for defibrillation.

If possible, change the person performing chest compressions every 2 minutes.

It is necessary to continue CPR until the appearance of life signs (breathing, movements, eye opening) before the arrival of the Emergency team or until physical exhaustion of the rescuer. If the victim shows signs of life, the rescuer should move him into a stable position on the side and wait for the arrival of the Emergency team, while constantly monitoring the breathing and be ready to continue CPR.

**Questions for test control**

1. Stages of dying:
   a) preagony, agony, coma, death;
   b) loss of consciousness, agony, clinical death;
   c) preagony, agony, clinical death;
   d) no right answer.

2. In preagonal condition:
   a) breathing is not disturbed, blood pressure is increased;
   b) shallow breathing, pulse thready, blood pressure is critically reduced;
   c) blood pressure is not determined, arrhythmia, convulsions;
   d) all answers are correct.

3. In the agonal state:
   a) pulse is increased, blood pressure is reduced;
   b) BP increased, arrhythmia;
   c) blood pressure is not determined, arrhythmia;
   d) all answers are correct.

4. Signs of clinical death
   a) loss of consciousness and lack of pulse in the carotid arteries;
   b) confusion and agitation;
c) threadlike pulse in the carotid arteries;
d) breathing is not disturbed.

5. Signs of clinical death:
a) violation of respiratory rhythm, convulsions, cyanosis;
b) unconsciousness, dilated pupils, arrhythmia;
c) unconsciousness, breathing arrest, undetectable pulse in the carotid arteries;
d) all answers are correct.

6. Duration of clinical death:
a) 1–2 minutes;
b) 3–5 minutes;
c) 25–30 minutes;
d) 8–10 minutes.

7. Duration of clinical death:
a) 2–4 minutes;
b) 3–5 minutes;
c) 5–8 minutes;
d) 8–10 minutes.

8. Indications for cardiopulmonary resuscitation:
a) terminal stage of incurable disease;
b) biological death;
c) clinical death;
d) all answers are correct.

9. Principle of ABC resuscitation (today):
a) heart massage, intubation, mechanical ventilation;
b) heart massage, ensuring the airway, mechanical ventilation;
c) mechanical ventilation, defibrillation, heart massage;
d) all answers are correct.

10. Action algorithm for cardiopulmonary resuscitation:
a) heart massage, mechanical ventilation, airway;
b) precordial punch, heart massage, mechanical ventilation, airway;
c) heart massage ensuring the airway, ventilation;
d) all answers are correct.

11. Triple airway manoeuvre (Safar's manoeuvre):
a) turn on its side and jaw thrust;
b) head tilt, jaw thrust, open mouth;
c) suck the contents, enter the mouthpiece, hold the nostrils;
d) a and b answers are correct.
12. Heimlich Maneuver is:
a) a sharp blow to the back;
b) a sharp push into the stomach under the diaphragm;
c) a sharp push in the chest;
d) a repeating cycle of 5 back slaps and 5 abdominal thrusts.

13. When performing a closed heart massage, the surface on which the patient lies must be:
a) hard;
b) soft;
c) inclined;
d) uneven.

14. With an indirect heart massage, compression on the sternum is performed:
a) the whole palm;
b) the proximal part of the palm;
c) three fingers;
d) one finger.

15. Compression frequency for cardiopulmonary resuscitation:
a) 100–120 per minute;
b) 90–100 per minute;
c) 60–80 per minute;
d) 60 per minute.

16. Displacement of the sternum during heart massage to the depth:
a) 5–6 cm;
b) 4–5 cm;
c) 2–3 cm;
d) 1–2 cm.

17. The ratio of inhalation and massage during cardiopulmonary resuscitation:
a) 1:5;
b) 2:10;
c) 2:15;
d) 2:30.

18. Criteria of effectiveness for cardiopulmonary resuscitation:
a) restoration of consciousness, restoration breathing, restoration blood pressure;
b) constriction of the pupils, the appearance of a pulse in the carotid arteries, appearance of breathing;
c) increase blood pressure, motor activity;
d) no right answer.

19. Complications during cardiopulmonary resuscitation:
a) ribs fracture;  
b) spinal fracture;  
c) nose fracture;  
d) all answers are correct.

20. Signs of biological death:  
a) cadaveric spots, rigor mortis;  
b) fibrillation of the ventricles, pupils dilated;  
c) coma, arrhythmia, blood pressure is not determined;  
d) all answers are correct.

Control questions
1. What are the features of the body of elderly and senile patients?  
2. Indicate the features of preparation for surgery in elderly and senile patients  
3. Explain the rules of care in the postoperative period for the elderly and senile  
4. What are the features of care for the seriously ill?  
5. What included in the concept of terminal states?  
6. Describe the concepts of preagony, agony, clinical and biological death.  
7. Explain the algorithm of cardiopulmonary resuscitation  
8. Define the concept of "resuscitation".  
11. Rules for restoring airway patency.  
12. Methods of artificial lung ventilation.  
15. What are the rules for resuscitation  
16. What indicators are used to assess the effectiveness of resuscitation measures?  
17. When do resuscitation activities end?

Recommended literature

The basic (basic)


**Additional**


