

## **METHODOLOGICAL SUPPORT OF CLASSES NURSING PRACTICE IN SURGERY**

**The aim** of nursing practice in surgery is to study the issues of general care for patients with surgical pathology, organization of the nurse's work, issues of providing qualified pre-medical care, mastering the rules of medical manipulations.

### **Tasks**

1. Study of the basic functional duties of the nurse of admission and surgical departments.
2. Acquaintance and mastering of the basic normative acts, orders, which regulate the work schedule of the hospital departments.
3. Education of students' principles of medical deontology and ethics.
4. Mastering the rules and methods of care for patients with surgical pathology.
5. The principles of the organization of execution and compliance with the regimes governing the work of the surgical department (sanitary-hygienic, anti-epidemic, and others).

### **To know:**

- the structure of medical institutions, the peculiarities of the organization of their work;
- orders and regulations governing the operation of the hospital;
- organization of work of hospital departments;
- the scope and forms of work of a nurse, her rights and duties;
- organization of sanitary and hygienic and anti-epidemic regimes;
- rules for hospitalization of patients in the surgical department of the hospital;
- organization of the work of the admission department;
- rules for the registration of pediculosis and sanitization;
- methodology for anthropometric and thermometric measurements;
- rules for transporting patients to the department;
- organization of the work of the medical personnel of the surgical department;
- the regime and rules of the internal order of work in the departments;
- the procedure for accepting and handing over duty;
- medical documentation, rules for its maintenance;
- features of personal hygiene of staff and patients;
- performing the toileting of patients;
- method of preparation of hygienic baths, technique of their implementation;
- measures to prepare patients for surgery and patient care in the postoperative period;
- rules for preparing patients for different examination methods;
- rules for providing emergency care.

### **Be able**

- Examine for pediculosis and sanitize the patient.
- Carry out anthropometric and thermometric measurements.

- Measure blood pressure and heart rate.
- Transport patients to the ward.
- Prepare a disinfectant solution.
- Carry out current and final disinfection of the ward, manipulation room.
- Draw up medical records (to the extent necessary for the nurse).
- Toilet the patient.
- Prepare hygienic and therapeutic baths, perform them.
- Prevent bedsores.
- Carry out sanitary and educational work.
- Perform injections, infusions
- Make bandages
- Perform all types of enemas
- Perform bladder catheterization
- Gastric lavage
- Use all types of feeding patients
- Prepare patients for different methods of examination
- Take material for study.

## CONTENT

***TOPIC 1. The main principles of work and organizational management of nurse in the surgical department. Sanitary-hygienic regime in surgical department. Morally-ethical and deontological principles of the nursing.***

### **The aim of the lesson:**

1. To learn the main principles of medical ethics and deontology in a surgical clinic.
2. To study the structure of the surgical department and the duties of the nursing staff.
3. To study the requirements for personal hygiene and clothing of medical personnel in the surgical department.
4. Review the medical records maintained by the nurse.
5. Learn to measure blood pressure and pulse of the patient, body temperature and fill temperature leaves.
6. To learn how to carry out the layout and distribution of medicine to patients.
7. Be able to transport the patient to the dressing room, to the operating room, to the diagnostic department.

Patient care is a set of actions aimed at creating favorable conditions for the successful treatment of patients, as well as alleviating their condition and meeting the basic physiological needs of the body.

Care involves the creation for the patient of a calm moral atmosphere, favorable living and hygienic conditions (optimal temperature, sufficient lighting and ventilation of the wards, a comfortable clean bed, the required minimum of personal hygiene items). The features and scope of care measures depend on the general condition of the patient, the nature and severity of his illness, and on the regime determined by the doctor. The most important tasks of care should be aimed at activating and maintaining the reserve capabilities of his body in the fight against an illness.

Patient care plays an important preventive role in the development of some diseases and their complications.

The goal is to improve the patient's health, preserve and strengthen his health. Care and treatment are inseparable.

Patient care is divided into general and special.

General care is a measure that is necessary for the patient himself, regardless of the nature of the disease or injury. Among the general measures:

- a) hygienic maintenance of the room, bed and furniture, the patient, his clothes, dishes, toilet items;
- b) strict adherence to all doctor's prescriptions (adherence to procedures and drug intake regimens);
- c) monitoring the course of the disease, the patient's condition and informing the doctor about changes in his condition;

d) feeding the patient.

Special care – activities carried out in relation to patients in specialized departments, such as urology, surgery, trauma. In the surgical department, measures are taken to examine, prepare the patient for surgery, perform surgery and manage patients in the postoperative period.

Surgical care – medical activities for the implementation of personal and clinical hygiene in a surgical hospital, aimed at assisting the patient in meeting his basic needs (food, urination, defecation, personal hygiene measures, change of bed linen) and pathological conditions (nausea and vomiting, respiratory disorders).

Care for patients in the surgical department has its own characteristics associated with surgical trauma, anesthesia (anesthesia), organ dysfunction due to pathological foci in the patient's body. The amount of care depends on the patient's disease, its severity, age of the patient, the amount of surgery, complications, the established regime.

An important component of patient care is the creation of maximum physical and mental peace. The main principles of the medical and security regime of the surgical department: silence in the rooms where patients are, calm, friendly attitude of medical personnel to them, elimination of all unfavorable factors that can injure the patient's psyche, provision of drugs, their use as prescribed by a doctor, quality nutrition with taking into account the disease and condition of the patient

Patient care is carried out by junior medical personnel who do not have special medical education, and nurses with special medical education.

### **Structure of a surgical department**

In large hospitals specialized branches for 40-60 beds. To prevent transmission of purulent infection from one patient to the next one, it is desirable to have a clean surgical wards and a department of surgical infections. They should be isolated from each other, have a separate inventory, equipment and staff. If it is impossible to create a separate department for purulent patients, separate wards and dressing rooms are allocated for purulent patients. The so-called clean and purulent patients should be placed on different wards. They should not have direct connections with each other, due to the prevention of the spread of infection in the surgical hospital. Surgical department is recommended to be designed with windows to the south, south east or west, which creates favorable conditions for lighting wards with natural sunlight, with a sufficient dose of germicidal ultraviolet rays, which makes possible to reduce the spread of bacterial contamination in the hospital.

The structure of the surgical department consists of wards for patients with 1-2 beds, an operating unit of the intensive care or reanimation, dressing rooms, manipulation room, doctors' room, room for the head of the department and a senior nurse, dining room, public toilet, room for linen and other auxiliary facilities.

In wards it is advisable to place two beds. Next to the bed bedside tables are placed. It is necessary to provide several wards for postoperative patients who are

transferred from intensive care. In these wards functional bed are set with adjustable height for a head and feet.

Area of wards – at least 6.5-7.5 m<sup>2</sup> per one bed. Beds should be placed along the walls to make it easy to transport patients in a ward on a gurney. Ratio square of windows to floor should be 1:6. Temperature conditions must be within 18-20°C. Hygienic standards of air in the room are 27-30 m<sup>2</sup>. The speed of the air should be between 0.1-0.15 m / s with a moisture content of 50-55%. The mentioned parameters in wards could be adjusted using air conditioners.

A necessary accessory in wards is a refrigerator for food storage, a sink with hot and cold water.

Patients from the operating unit are delivered in wheelchairs to the intensive care unit, where they stay after surgery for 3-5 days, if needed constant observation and the necessary medical treatment are prescribed. The department must have apparatus for breathing, electrical stimulators, centralized supply of oxygen.

The walls of wards, corridors should be painted in bright colors, so you can notice any pollution and conduct wet cleaning using antiseptics.

### **Sanitary-Hygienic Regimen in the Surgical Department**

After the patients' discharge, the bed, bedside-table, support for urine vessel, wiped with a moistened duster with disinfectant solution (1% solution chloramine B or 0.75% solution chloramine B, 0.5% solution of detergent, 0.2% solution of desaxon-1, 0.5% solution of chlordesine, etc.). It is not allowed to accept to the surgical department soft toys which could not be disinfected.

Patients with pyo-septic diseases and postoperative purulent complications are isolated in separate wards or departments. In these wards, ultra-violet bactericidal irradiators of the close type should be established.

The personnel who work in purulent units and wards, after work, change surgical coats, masks and hats.

Hands are disinfected with 70% spirit or chlorhexidine for 2 min.

The department is kept in order. Cleaning is carried out not less than twice per day by a damp way with a soap-soda solution. Disinfectants are used after linen is changed and in the case of occurrence of hospital infections. In wards for patients with pyo-septic diseases and postoperative purulent complications, daily cleaning is carried out with necessary application of disinfectant solutions (1% solution of chloramine, 3% solution of hydrogen peroxide with 0.5% solution of detergent, 0.2% solution of desaxone-1, chlordesine).

### **Requirements for personal clothing and hygiene of medical staff in a surgical department**

Basic requirements to hygiene of medical staff are:

- provision of body hygiene;
- proper hygienic care of hands, including the nails;
- regular hygienic treatment of hands of nurses;
- hand disinfection of staff by disinfectant solutions;

- correct selection and of medical uniform (cap and gown) in compliance with their hygiene;
- correct selection and wear of proper change footwear with its hygiene;
- proper put on and wear of sterile surgical masks;
- proper put on and wear of shoe covers (in the operating unit);
- proper behavior of medical staff in the operation and bandaging rooms (including disinfection of hands, put on and wear of gowns, masks, shoe covers).

All these measures are needed primarily to prevent airborne droplets carrying microorganisms. Masks should be replaced when they become wet. One cannot put them down on a neck, use more than once. All masks must completely cover the mouth and nose. High-quality disposable masks are much more efficient than conventional gauze or paper to prevent the spread of carriers of air and drop infection.

Protection of eyes. Protective barriers for eyes and face are necessary to protect the eyes from splashes of blood or body fluid discharge.

Gowns and aprons. Excluding operating rooms or isolation boxes where sterile gowns are worn to protect the patient, the primary goal of gowns and plastic aprons is to exclude infectious agents on the skin and clothing of personnel. Gowns and aprons are needed only when the likelihood that body fluids contaminate skin is enormous. In no case one should be allowed to wash the staff attributed at home.

Universal precautions. All patients should be considered as potentially infected with HIV and other infections which are transmitted with blood. Medical personnel should be reminded of 7 safety rules to protect the skin and mucous membranes in case of contact with blood or body fluids of any patients:

1. Wash your hands before and after any contact with the patient.
2. Consider blood and rare secretions of patients potentially infected and work with them only with gloves.
3. Immediately after application put used syringes and catheters into a special container for disposal of sharp objects, never remove from syringes needle holders, not carry out any manipulations with used needles.
4. Use eye protection measures and masks to prevent the possible penetration of liquid splashes of blood or secretions in the face (during surgeries, manipulation, catheterization and treatments in the mouth).
5. Use special waterproof clothing to protect the body from possible liquid splashes of blood or secretions.
6. Consider all clothes contaminated with blood or fluids as potentially infectious.
7. Regard all samples of laboratory analyses as potentially infected.

### **Safety of medical staff**

The mechanisms of transmission from a patient to a medical worker:

- a) contact;
- b) the fecal-oral;
- c) airborne;
- d) transmissible.

### **General measures to prevent infections**

Initial and regular examination with registration of immune status and immunization. All incidents (needle prick or cut) should be reported to the supervisor and registered in the log of registration. The same applies to cases of infection through contact with the patient.

All skin lesions should be covered with the waterproof bandage.

An important point in preventing HIV in medical staff is personal hygiene. The rules of personal hygiene include: daily shower or bath, with special attention paid to hair and nails, thoroughly washing of gowns and other personal clothing, protection of a mouth and nose (preferably disposable protective equipment) and turning the head away from people who are nearby while coughing and sneezing; scrupulous hand washing.

### **Carrying out hygiene of linen and clothing of patients**

- basic requirements for personal laundry of a surgical patient;
- basic principles of sanitizing shoes (slippers) of patients;
- features of changing dirty linen and clothing of patients with the bed regime;
- methods of sanitization processing of underwear and bed linen of patients;
- features of gathering and disinfection in the ward after change of linen

### **Responsibilities of a nurse on duty and a senior nurse**

The work of the nurse in the department concerning care for patients is supervised by a doctor-intern, who distributes the work of the department – head nurse of the department.

The nurse is responsible for timely and proper execution of medical prescriptions and for the quality of care in the wards or dressing, manipulation rooms. A person with the middle level of education is hired as a nurse.

The work of nurses and junior nurses in a surgical department is supervised by a head nurse, and her work is supervised by the head of the department. She implements all his orders for care and maintenance of sick and bears responsibility for this.

The supervision duties of a senior (head) nurse include:

- timeliness and clarity of execution doctor's prescriptions;
- keeping to principles of medical protective regime;
- saving in working condition of medical instruments, equipment and objects used in care for patients;
- ensure timely and proper nutrition of patients;
- implementation of the rules of receiving and discharge of patients by the middle level and junior level of medical staff;
- under the supervision of the head of department to develop and control plans for training courses by the middle level and junior level of medical staff;
- participation in the Council of Nurses inside the hospital, conferences for nurses.

## **Medical ethics and Deontology**

Medical ethics is a reflection of the principles of morality and humanism in the activities of medical workers. It establishes and regulates the norms of moral behavior of a doctor, nurse, nursing staff, their relationship not only with the patient, but also with his relatives, with employees.

Deontology is the science of the moral obligations of a physician in the course of his professional activity. Deontology reflects moral requirements and defines a spiritual code of conduct for the healthcare professional in dealing with patients and work colleagues. The assimilation of medical ethics and deontology is a prerequisite for the professional training of a physician.

### **Questions for test control**

1. The structure of the surgical department consists of:

- 1) laboratory;
- 2) wards for patients;
- 3) dressing rooms;
- 4) manipulation room;
- 5) operating rooms.

Choose the right combination of answers:

a) 1, 2, 3, 4; b) 2, 3, 4; c) 1, 4, 5; d) 2, 3, 4, 5; e) 3, 4, 5.

2. The following premises are part of the surgical department, except for:

- a) operating room;
- b) dressing room;
- c) wards for patients;
- d) laboratory;
- e) manipulation room.

3. The surgical department consists of two parts:

- 1) clean;
- 2) purulent;
- 3) urgent;
- 4) polluted;
- 5) aseptic.

Choose the right combination of answers:

a) 1, 2; b) 2, 3; c) 1, 4; d) 3, 4; e) 4, 5.

4. The number of patients in the modern surgical department:

- a) 20–40;
- b) 40–60;
- c) 60–80;
- d) 80–100;
- e) does not matter.

5. Nosocomial infections are:

- a) infections that have been caught at home and are potentially caused by organisms that are resistant to antiseptics;
- b) infections that have been caught in a hospital and are potentially caused by organisms that are resistant to antibiotics;
- c) infections that have been caught in a hospital and are potentially caused by organisms that are resistant to antiseptics.

6. The source of nosocomial infection is:

- a) relatives who visited patients;
- b) patients;
- c) products;
- d) things;
- e) animals;

7. The prevention of nosocomial infections includes:

- a) combating smoking;
- b) examination of the medical personnel for a bacterial carrier;
- c) administration of antibiotics to all patients in the hospital.

8. The routes of transmission of hospital-acquired infection in the surgical department, except:

- a) airborne;
- b) contact;
- c) straight;
- d) implantation.

9. Measures to prevent the transmission of infection by airborne droplets in the surgical department are all listed below, except:

- a) the use of masks by staff;
- b) sterilization of the dressing material;
- c) ultraviolet irradiation of dressing and operating rooms;
- d) air conditioning and bacterial air purification in the operating room.

10. If inflammatory processes are diagnosed in medical personnel, these workers are immediately:

- a) fired;
- b) hospitalized in the infectious disease department;
- c) prescribed enhanced nutrition;
- d) suspended from work until full recovery;
- e) all answers are correct.

11. The source of the causative agent of infection in the surgical department can be:

- 1) a sick person;
- 2) a bacteria carrier;

- 3) animals;
- 4) dirty water;
- 5) mosquitoes.

Choose the right combination of answers:

- a) 1, 2; b) 2, 3, 4; c) 1, 4, 5; d) 2, 3, 4, 5; e) 3, 4, 5.

12. Patients with surgical infection are treated in:

- a) gastroenterology department;
- b) surgery department;
- c) infectious disease department;
- d) admission department;
- e) therapeutic department.

13. The maximum number of beds in the ward:

- a) 1;
- b) 1–2;
- c) 3–4;
- d) 5–6;
- e) 7–8.

14. The recommended relative humidity range for wards in hospitals:

- a) 20–25%;
- b) 30–35%;
- c) 40–45%;
- d) 50–55%;
- e) 60–65%.

15. The windows in the wards should face:

- a) south;
- b) east;
- c) west;
- d) north;
- e) all answers are correct.

16. The ratio area of the windows to floor area in wards should be:

- a) 1:2;
- b) 1:4;
- c) 1:6;
- d) 4:6;
- e) 5:6.

17. The temperature in the wards must be:

- a) 15–18 °C;
- b) 18–20 °C;
- c) 22–25 °C;

d) 25–27 °C.

18. The area in the ward per 1 bed must be:

- a) 2 m<sup>2</sup>;
- b) 5 m<sup>2</sup>;
- c) 7 m<sup>2</sup>;
- d) 10 m<sup>2</sup>;
- e) 12 m<sup>2</sup>.

19. Bed linen is changed once every:

- a) 1–2 days or after pollution;
- b) 3–4 days or after pollution;
- c) 7–10 days or after pollution;
- d) 12–14 days or after pollution.

20. Deontology is:

- a) science of treatment rules;
- b) science of nursing;
- c) science of legal aspects of the work of a doctor;
- d) science about professional duties of health workers towards sick people.

### **Control questions**

1. What is patient care?
2. What types of patient care do you know?
3. What are the features of care for surgical patients?
4. Structure of a surgical department.
5. Cleaning of a surgical department.
6. The ways of infection dissemination in a surgical department.
7. Prophylaxis of infection in a surgical department.
8. Requirement for personal clothing out hygiene of medical staff in in a surgical department.
9. Carrying out hygiene of linen and clothing of patients.
10. Responsibilities of a nurse on duty out a senior nurse.
11. Antisepsis. Methods.
12. Deontology in surgery.
13. Moral and legal responsibility of nurse.

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.

2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCUC”, 2017. – 100 p.
3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

### **Additional**

1. Surgery: Text-book for English medium medical students / S.I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

## ***TOPIC 2. Main duties and actions of a nurse in the admission department of a surgical clinic***

### **The aim of the lesson:**

1. Know the structural units and equipment of the admission department.
2. Know the peculiarities of the patient's sanitization.
3. Know the methods of transporting the patient to the department.
4. Fill in the documentation for the patient entering the surgical hospital.
5. Conduct an examination for scabies, head lice and sanitization of the patient.
6. Carry out anthropometric research.
7. Carry out the transportation of the patient to the department.

The work of the hospital is determined by the correct and precise work of the admission department. The main tasks of the admission department are: initial examination, sorting and referral of patients to different departments of the hospital or outpatient treatment; provision of outpatient care; sanitization of patients admitted to the hospital; paperwork; organization of admission and discharge and registration of the movement of patients; communication with the ambulance station and other medical institutions. The success and result of treatment often depends on the literacy and organization of the actions of the medical personnel of the admission department.

### Admission department functions:

1. Reception and registration of patients.
2. Examination of patients.
3. Provision of emergency medical care.
4. Determination of the in-patient department for hospitalization of patients.
5. Sanitary and hygienic treatment of patients.
6. Registration of the relevant medical documentation.
7. Transportation of patients.

The work of the admissions department proceeds in a strict sequence:

- registration of patients;
- medical examination;
- sanitary and hygienic processing.

### **Organization of work in the admission department of a surgical clinic**

In a centralized planning system, almost all hospitals and medical diagnostic department, including emergency departments, are localized in one building. In a decentralized (pavilion) system the admission department is located in a separate building or in one of the medical blocks, where resuscitation, therapeutic or surgical departments are located.

The admission department should be located near the entrance to the hospital and be comfortable to transport patients to have access paved paths, stairs and doors wide enough for carrying patients.

The admission department consists of:

1. Waiting room;
2. Reception;
3. Procedure room;
4. Several examination and diagnostic rooms;
5. Insulator;
6. Sanitary inspection room;
7. The office of the doctor on duty;
8. Bathroom;

In the emergency department of large hospitals or close to it dressing room and sometimes a small operating room, X-ray room and clinical laboratory should be placed. Nearby must be the room (warehouse) for storing clothing of patients who undergo hospital treatment.

Waiting room is designed for walking ambulatory patients, their relatives and accompanying persons. There must be a sufficient number of chairs, information about the work regime of departments, hours of visits; list of permitted food for patients should be on walls. Reception is located near the waiting room. Here a nurse of the receiving department carries out check-in of patients, who enter the in-patient department.

A patient is examined by a doctor on duty in the examination room, thermometry and sometimes other examinations are carried out there (eg, electrocardiography, etc.).

Patients with the unidentified diagnosis are temporarily left until clarification of diagnosis in the diagnostic department, and patients with suspected infection should be isolated in the box. If necessary, in the procedure room emergency care to patients is provided. Sanitary processing of patients who arrive at the hospital is carried out in sanitary box.

### **Arrival of patients to the in-patient department and their registration**

In the receiving ward patients arrive:

1. due to referral in case of inefficiency of outpatient treatment, so-called "planned hospitalization";
- 2 by Ambulance in case of accidents, injuries, diseases or acute exacerbations of chronic diseases;
3. on their own, without a referral; if the patient started to feel ill on the street and turned to the emergency department;
4. as a result of transfer from other medical institutions.

Depending on the condition of their patients, they are either hospitalized or provided first aid and sent for treatment to establishments by place of registration. Patients in need of intensive care, for example, patients with myocardial infarction, enter the appropriate department, without the receiving department.

Patients, who arrive at the hospital, are examined by a doctor on duty in the receiving department to determine whether infectious diseases can be evident. Skin, hairy parts of the body, mouth are checked, body temperature is measured. Metal spatulas after examining the throat are immersed in disinfectant solution. In

the emergency department preference should be given to disposable spatulas. Thermometers are disinfected with a 1% solution of bleach; or a 0.1% desoxon solution for 15 minutes, or dipped in a 3% solution of hydrogen peroxide for 80 minutes.

Cloth of the couch on which the patient was examined is washed twice, with an interval of 15 minutes, wiped with a 1% bleach solution or a 0.5% solution of bleach, rinsed with water and dried.

After solving the issue of hospitalization by a doctor, a way of sanitization and transportation of the sick patient, a nurse at the reception of the receiving department prepares appropriate medical documentation:

- title page of medical card (blank 003-y);
- “log of hospitalized people” (blank 001-y), which indicates surname, name and patronymic of the patient, date of birth, home address, phone number (home, office), name, patronymic, family name and home address of the patient’s family, job, profession, position, who referred the patient, the diagnosis at the referral, the diagnosis of the receiving center where (in what branch) the patient is referred, date and hour of receiving;
- a nurse receives all data about the patient directly from the patient or those who accompany him or medical personnel of Ambulance;
- a nurse fills in "Statistical card of the patient discharged from the hospital" (blank 066-y), which is inserted into case history;
- a nurse inputs patient’s data (name, surname, patronymic, date of receiving, name of the division in which the patient was referred) into the alphabetical book, which is a reference document for the informational service;
- if the patient has documents or valuables, a nurse takes them with him or the staff of Ambulance, describes them in a cover sheet and stores in the safe.
- if the patient is unconscious and without documents after medical examination, emergency medical care and completion of necessary medical documentation a nurse is obliged to phone the police department, describe the signs of a person (gender, approximate age, height, body structure, distinguishing marks ), and his/her clothes. All documents for identification of the patient is processed as "unidentified."

The simplest method of examination of patients is anthropometry. This is an examination of the physical development of a person. Height, weight, circumference of the chest, respiratory function (spirometry), muscular forces (dynamometry) are determined. This manipulation is conducted while patient admission to the medical establishment, sanatorium, or rest home. It is obligatory in sanitary establishments unlike to medical hospitals.

**Height** is measured with an auxanometer. While measuring the height, the patient stands with his back to the post, touching it with his heels, buttocks, shoulder and back of the head. The head is in such position so that the corners of the eyes and the top edge of the external acoustical duct are on one

and the same line. The height is determined after lowering the board onto the head with its bottom edge. In some cases height is measured sitting.

**Weighing** is carried out on medical scales. The patient is weighed at admission to the medical establishment and further no less than once a week, under the same conditions: on an empty stomach, in underwear, after emptying the urinary bladder and intestines. Seriously ill patients are weighed sitting.

**Circumference of the chest** is measured with a centimeter tape, putting it in the front on the 9th rib under the nipples in men, and in the back under the lower corners of the scapula. Hands are lowered; breathing is voluntary without any deep inhalations and exhalations. Measurements are conducted at the height of inhalation and exhalation.

### **Features of sanitization of patients with surgical pathology in the emergency department**

During hospitalization of the patient to the in-patient department, he/she undergoes sanitization in the sanitary room of the receiving department, which includes the following procedures: examination of a body to detect infectious diseases, scabies and so on; examination of the head and linen of the patient to detect lice; if necessary – cut nails, hair, shave; provide hygienic bathing, showering or sponging, depending on the patient; change the patient into a clean hospital clothes. The need for sanitization and its volume is defined by a doctor.

The sanitary room should be equipped with all necessary for sanitary treatment of the patient – couches, cabinets for clean underwear and tank for dirty clothes, washcloth to wash patients, soap, hair clippers, razors for shaving, scissors, air and water thermometers, washcloths and brushes for bath treatment, specifically labeled dedicated equipment (buckets, mops) for cleaning and disinfection of facilities in the sanitary rooms, hydro-remote and sufficient amount of disinfecting solutions.

### **Sanitary-Hygienic Regimen in the Admission Department**

The doctor examines everyone who enters the admission office, so that in due time patients with pyo-septic wounds can be revealed and isolated. The patient's skin and temperature are checked. Wooden spatulas are destroyed after use; metal ones are disinfected (immersed in a 2% formalin solution by 30 min or boiled for 30 min). Thermometers are kept for disinfection in a 0.5% solution of chloramine (30 min) or a 3% solution of hydrogen peroxide (80 min), or a 0.1% solution of desoxyne-1 (15 min). Inspection of a patient is conducted on a couch covered with oilcloth: after every patient's examination the oilcloth is wiped with a duster moistened in chloramine solution with a 0.5% solution of washing liquid, or a 3% solution of hydrogen peroxide with a 0.5% solution of washing liquid (desoxyne-1). After the patient is examined, a wound inspected and bandages changed the personnel disinfects the hands — washes them in warm running water with soap for 2 min. For this purpose, bars of laundry or toilet soap in small packing (for one use) are used. After the patient's inspection for pyo-

septic diseases, purulent wounds are cleaned, the personnel disinfect the hands with bactericidal preparations (80% ethyl spirit, solution of chlorhexidine bigluconate in 70% ethyl spirit, 0.5% solution of chloramine). The working solutions for the mentioned above preparations are prepared at the drugstore of the treatment-prophylactic establishment. The container with the solution is placed near the washstand, in the dressing-room, for disinfecting hands with ethyl spirit or chlorhexidine preparations; it is put on the palmar surface of the hands by 5–8 ml and rubbed into the skin for 2 min. Such a solution is applied 10 times. Brushes for hands processing are washed and boiled in 2% soda solution for 15 min. Clean brushes are kept in sterile drums. They are taken out with sterile forceps.

Each employee of the admission office has an individual towel. Towels are changed once a day. Inspection of wounds and changing of bandages are carried out only in dressing gowns, slippers, hats, masks, gloves. When cleaning purulent wounds, abscesses, phlegmons, etc., additionally oil-cloth apron are put on, which are disinfected after each use, as well as oilcloths on couches (solution chloramine or 3% solution of hydrogen peroxide with 0.5% solution of washing liquid).

The patient in the admission office passes full sanitary cleaning

— takes a shower or bath, cuts the nails. For washing, a patient receives a clean wash cloth. After sanitary cleaning, he puts on clean hospital linen, dressing gown or pajamas, slippers.

The admission room is tidied up no less than two times a day in a damp way with disinfect solutions: 1% solution of chloramine, 0.2% solution of desoxyne-1, 0.5% solution of chlordesine, etc. Cleaning material (buckets, basins, etc.) are marked and strictly used according to the purpose. Dusters are strictly kept according to cleaning purpose. After use, cleaning material is disinfected (soaked in 1% solution of chloramine for 60 min, 0.2% solution of sulphochlorantine — 60 min, 2% solution of dichloride-1 — 60 min, 1% solution chlordesine — 60 min).

### **Questions for test control**

1. The tasks of the admission department:

- a) initial examination, sorting patients to different departments of the hospital;
- b) outpatient assistance;
- c) sanitary processing of patients admitted to the hospital;
- d) registration of documents;
- e) all answers are correct.

2. The part of admission department:

- a) wards;
- b) small operating room;
- c) laboratory;
- d) dining room;
- e) purulent dressing room.

3. A basic document of the admission department:

- a) temperature sheets;
- b) case report (medical card);
- c) statistical card;
- d) emergency notice.

4. What information is written on the first page of the "case report":

- a) patient's first name, middle name, last name;
- b) age, sex;
- c) time and date of hospitalization;
- d) diagnosis of the referral institution;
- e) all answers are correct?

5. Functions of a nurse in the admission department:

- a) admission of patients;
- b) performing breathing exercises;
- c) elastic bandaging of the lower extremities;
- d) surgical treatment;
- e) discharge of patients.

6. Functions of a nurse in the admission department:

- a) breathing exercises;
- b) registration of patients who applied for help to a medical institution;
- c) elastic bandaging of the lower extremities;
- d) surgical treatment;
- e) discharge of patients.

7. Which of the following measures are not carried out in the admission department during hospitalization of the patient:

- a) examination of the patient;
- b) filling out a medical card;
- c) sanitary processing of the patient;
- d) processing of the surgical field;
- e) transportation of the patient to the surgical department?

8. The patient has symptoms of an infectious disease. The nurse must:

- a) work in reusable gloves;
- b) work in disposable gloves;
- c) you can work without gloves, but you must perform hand hygiene with antiseptics.

9. If a patient is suspected of having an infectious disease with an aerogenic route of transfer, the nurse should:

- a) put on a mask;
- b) you can not use the mask with good immunity;
- c) it is allowed to use the mask at the request of the health care provider;
- d) turn on the ultraviolet lamp.

10. Where does the patient change clothes before hospitalisation to the surgical department:

- a) at home in advance;
- b) in a ward;
- c) in the admission department;
- d) in the sanitary room of the surgical department;
- e) in the treatment room of the surgical department?

11. Which of the measures does not include the sanitary processing of the patient:

- a) cutting the patient's hair;
- b) washing the patient in the shower;
- c) washing the patient in the bath;
- d) treatment of the skin around the wound with a solution of ethyl alcohol;
- e) treatment of the patient's hair with benzyl benzoate?

12. What should be the sanitary processing in the admission department for seriously ill patients in need of immediate surgery:

- a) washing in the bathroom;
- b) washing in the shower;
- c) rubbing the whole body with a towel dampened in detergent;
- d) rubbing, with a towel dampened in detergent, the axillary, inguinal areas and perineum;
- e) sanitization is not carried out?

13. Types of sanitary processing of patients:

- a) full and partial;
- b) daily and monthly;
- c) selective and compulsory;
- d) current and selective.

14. Contraindications for sanitary processing of a patient:

- a) bleeding of any origin;
- b) patient's serious condition;
- c) severe fever;
- d) trauma with functions disorders of organs;
- e) last weeks of pregnancy;
- f) all answers are correct.

15. At what temperature should water for washing patients be:

- a) 30 °C;
- b) 32 °C;
- c) 40 °C;
- d) 42 °C?

16. Who examines patients for the identify of lice and scabies:

- a) a nurse of the surgical department;
- b) a nurse of the admission department;
- c) a doctor of the surgical department;
- d) a doctor of the admission department?

17. If pediculosis is detected in a patient delivered to the admission department, everything must be done, except:

- a) treating the patient's head with an anti-pediculant;
- b) combing out the lice from the patient's hair with a fine toothed comb;
- c) in the medical history, putting a mark on the treatment of pediculosis;
- d) sending the patient's clothes for disinfection;
- e) isolating the patient in a separate box.

18. What is the exposure time of «Nittifor»:

- a) 10 min;
- b) 20 min;
- c) 30 min;
- d) 40 min?

19. What medications are used for sanitige a patient with pediculosis:

- a) Nittifor;
- b) Nittilon;
- c) soap-kerosene emulsion;
- d) all answers are correct?

20. Anthropometric measurements do not include:

- a) measurement of height;
- b) chest circumference measurements;
- c) foot circumference measurement;
- d) estimation of the patient's body weight.

### **Control questions**

1. Functions of the admission department.
2. The structure of the admission department.
3. Responsibilities of the admission department nurse.
4. Responsibilities the doctor of the admission department.
5. Methods of delivery of patients to the admission department.
6. Name the types of patients hospitalization.
7. What documentation is kept in the admission department?
8. Filling medical documents in AD.
9. Name the stages of sanitary and hygienic treatment of patients in the admission department.
10. Signs of pediculosis and scabies.
11. Processing the patients in revealing lice.
12. Processing the patients with scabies.
13. Sanitary processing of patients.

14. Complete sanitary processing.
15. Partial sanitary processing.
16. Weithing the patients.
17. Measurement of body height.
18. Measurement of thorax circumference.
19. Measuring blood pressure.
20. Feelling pulse.
21. Termometry.
22. Transportation patient.

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCU”, 2017. – 100 p.
3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

#### **Additional**

1. Surgery: Text-book for English medium medical students / S.I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

### ***TOPIC 3. Preparing patients for planned and urgent operations***

#### **The aim of the lesson:**

1. Have an idea of the preoperative period.
2. To know the peculiarities of preparing patients for planned and emergency surgical interventions.
3. Know the bases of the patient's psychological preparation for surgery.
4. Be able to carry out preliminary preparation of the operating field.
5. To be able to sanitize the patient's oral cavity before the operation.
6. Master the technique of performing gastric lavage with a probe.
7. Master the technique of performing a cleansing enema.
8. Master the technique of bladder catheterization.
9. Be able to transport the patient to the operating room.

The preoperative period is the period of time from the moment of hospitalization of the patient in the department to the beginning of the operation. The length of the preoperative period depends on the disease (acute or chronic), the volume of future surgery, the patient's condition and reserves of his body. Operations performed in an acute condition that directly threatens the patient's life are performed after a minimum amount of preoperative preparation. In the case of planned operations, the preoperative period lasts from several hours to several days, less often - weeks and very rarely - weeks. From a medical and economic point of view, the preoperative period should be as short as possible: the less the patient is in the ward before surgery, the lower the risk of infection with nosocomial infection. In the surgical department, contact of a patient awaiting surgery with a purulent infection should be prevented. After the final diagnosis and the necessary research is carried out directly preoperative preparation. The scope and content of preoperative preparation is determined by the condition of the patient, his organs and systems and the nature of the operation itself. In the case of small-scale surgical interventions in patients without significant deviations from the norm of the functions of their main systems and metabolism, preoperative preparation can be limited to psychological and sanitary training. In patients who require major internal surgery, and in the presence of significant changes in the body related to disease and age, preparation for surgery should be multidisciplinary and much more complex.

Preoperative preparation of patients for surgery consists of general training (required by all patients without exception) and individual preparation of their organs and systems, which revealed various disorders. The latter is carried out by both common and specific measures. The amount of preoperative preparation depends on the type of future surgery in terms of urgency. Emergency surgery is an operation that is performed immediately or within a few hours of hospitalization (acute appendicitis, pinched hernia, acute intestinal obstruction, perforated gastric ulcer, etc.). Urgent surgery is an intervention that is performed in the coming days after hospitalization of the patient in the clinic (mechanical jaundice, malignant tumor, etc.).

Scheduled surgery is performed only after a detailed examination of the patient and thorough preoperative preparation for chronic surgical pathology. Examination and preparation of the patient for emergency surgery is individual and depends on the severity of his condition. At asphyxia, injuries of heart and large main vessels patients are operated practically without preparation. In other cases, the preparation of patients is reduced. The main tasks of the preoperative period in such cases are diagnosis, indications and contraindications, urgency and nature of the operation, determination of anesthesia, hygienic and therapeutic measures to improve impaired organ function, creating functional reserves of the body to increase its defenses and prevent endogenous infections.

Before emergency surgery it is necessary to follow a certain sequence when performing hygienic procedures: hygienic shower followed by a change of linen, extensive hair removal in the area of the operating field, skin treatment with antiseptics, evacuation of stomach contents, removal of dentures, premedication, catheterization of the bladder, preparation of the operating field.

Preparation of the patient for the planned operation includes the following measures:

1. Psychological preparation.
2. Preparation of the operating field
3. Preparation of the cardiovascular system.
4. Preparation of the respiratory system.
5. Preparation of the gastrointestinal tract.
6. Improving the functional state of the liver and kidneys.

### **Psychological preparation for surgery**

If the surgeon should provide a clear explanation of the planned course of therapy. The patient must be informed of the risks of the proposed treatment, the risks of the underlying disease, and plausible therapeutic methods. The psychological preparation is mainly aimed at clarifying the necessity and instilling hope for a successful outcome of the surgery. Especially is this necessary when a patient refuses the operation as a result of their incomprehension of the severity of their condition (e.g. acute appendicitis, strangulated hernia, perforated peptic ulcer, intra-abdominal bleeding due to a rupture of ectopic gestation, or the spleen or liver, penetrating injuries to the abdomen, chest) in which case a delay in surgery can lead to severe peritonitis or pleuritis, blood loss and irreversible consequences.

### **The physiologic preparation for the surgery must include the following:**

1. Estimation of the surgical risk associated with the underlying circulator)' disorders, diagnosis and management of the preoperative cardiovascular problems (e.g. preparations that improve microcirculation (rheopolyglucin).
2. Prevention and treatment of respirator)' distress (oxygen therapy, improvement of pulmonary circulation, and mechanical ventilation in severe cases).
3. Detoxication therapy - fluid infusion, blood substitutes with detoxicating properties, forced diuresis with specific techniques - hemabsorption, lymph

absorption, plasmapheresis and oxygen therapy.

#### 4. Correction of fluid, electrolyte, and acid-base disorders.

Preparing of patients for surgery is performed, depending on the nature of the disease, the patient's condition and the available amount of the surgery.

Equally important in preparing the patient for surgery is the definition of the cardiovascular system. An examination of the *cardiovascular* system detects certain disease (atrial fibrillation, heart disease, hypertension, etc.). All patients are necessary to have their blood pressure measured (in special cases and venous pressure), pulse counting, electrocardiography should be performed, if necessary ultrasound of the heart and others. If there are changes it is necessary to consult with a cardiologist and prescribe corrective medical treatment.

*Respiratory system.* An examination of the respiratory system should be performed primarily to exclude acute inflammatory diseases of the respiratory tract (upper respiratory tract catarrh, bronchitis, bronchopneumonia). Equally important is to carry out spirometry and to determine vital capacity (vital capacity of the lungs) (norm – 3500-4500 ml); carry out Shtange test – a breath at the maximum inspiration (norm - 40-50 seconds) and Sobraze test – a breath at a maximal expiration (norm - 15-20 seconds). For the detection of lung diseases it is important to perform fluoroscopy and X-ray examination of the chest. All patients should not smoke for 2-3 weeks before surgery. Patients with pulmonary suppurative processes (abscess, bronchiectasis, etc.) require special training for remission of respiratory inflammation. They are prescribed sanitation of tracheal bronchial organs, intra-tracheal introduction of antibiotics, expectorant medications. Such patients are administered restorative therapy (transfusion of blood components, vitamin therapy, increased nutrition), system and breathing gymnastics.

*Digestive system.* In the preoperative period, the importance is paid to the state of the oral cavity, sanitation of carious teeth, inflammation of the gums, tongue are performed. If any pathology of the gastrointestinal tract is discovered (gastritis, gastric ulcer or duodenal ulcer, etc.) medical treatment is prescribed. In cases where the operation will take place under general anesthesia, it is necessary to determine liver function (bilirubin, total protein, ALT, AST, alkaline phosphatase, etc.). All operations are usually performed on an empty stomach. Patients are not allowed to eat in the morning. In the evening, before the operation, a cleansing enema is applied. For 30 minutes before surgery stomach is washed out. Before the surgery on the colon for 1-2 days laxative, repeated enemas and a special diet are prescribed. To prevent postoperative complications and inhibition of microbial flora of these patients for 3-4 days before surgery they are prescribed chloramphenicol, colimistyn or other antibiotics. With stagnation in the stomach, in the evening and in the morning it is washed out for 5-6 days prior to surgery to correct homeostasis and to carry out transfusions of blood components (erythrocytes, plasma, albumin, etc.), a 5% glucose solution with insulin, 1.5-2 liters per day, electrolytes (K, Na, Ca). The

nutrition of such patients should be high caloric, easily digestible, contain enough vitamins.

*Urinary system.* All patients before surgery are performed urinalysis. If there are changes, Zimnitskiy test is applied, special urological examination (intravenous pyelography, cystography, cystoscopy) are provided. In women before the operation gynecological examination should be performed. In the presence of menstruation the surgery can be postponed due to hormonal changes, increased fibrinolysis and tissue bleeding during and after surgery.

*Blood and blood-forming organs.* Before the operation, blood count, bleeding time and blood clotting should be carried out. Before massive operations coagulation, thrombus elasticity examination should be made. In case of low abilities of blood coagulation system, patients may experience dangerous bleeding, hematoma. With increased clotting properties of blood there can occur thrombosis, thrombophlebitis and embolism (pulmonary artery). In all cases the correction of preoperative blood coagulation system should be performed. With increased blood clotting tendency at first the patient is prescribed anticoagulants of direct action (heparin, fraxiparine, clexaen et al.) and then transferred to the anticoagulants of indirect action (neodikumarin, pelentan, synkumar et al.), The dose of the medicine depends on changes in coagulation. By reducing blood clotting repeated blood transfusions (150-200 ml) of plasma vicasol, adroxonum 10% solution of calcium chloride 10 ml intravenously are prescribed. In preparation of anemic and weakened patients, transfusion of packed red blood cells, plasma albumin and other components is made.

*Skin.* During the examination of the skin it is necessary to pay attention to availability of purulent disease. Inflammatory processes should be eliminated, because these diseases can be a source of endogenous infection and cause severe septic complications. On the day before the operation the patient takes hygienic shower, severe patients take a bath or wet wiping. Shaving hair in the operative field is made on the day of the surgery.

### **Special preoperative preparation**

Preparations are made in accordance with the disease and determine the localization of process and the patient (surgery on vessels in the colon, the output of gastric stenosis, etc.). When preparing the patient for surgery it is necessary to perform procedures that are aimed at preparation of organs and systems: wash out a stomach, bladder catheterization, cleaning or siphon enemas, puncture of purulent areas and others.

Special attention is needed for surgical preparation of patients with surgical disease which appeared emerged against the background of diabetes. Careful adjustment of the acid-base balance (metabolic acidosis), carbohydrate metabolism, and disorders of the cardiovascular system, kidneys and nervous system are necessary. Patients who receive prolonged forms of insulin are transferred lead to simple insulin.

Prevention of endogenous infection. It is necessary to ask the patient about the presence of his/her chronic inflammatory diseases (caries, chronic tonsillitis,

sinusitis, pustular skin diseases etc.) and to carry out sanitation of chronic infection areas in the outpatient setting. At long operations, accompanied by cutting open hollow organs to prevent festering of wounds during the surgery and for one or two days it is recommended to administered antibiotics.

*Gastric intubation* is applied to examine gastric juice, artificial feeding and gastric lavage. For this purpose thick and thin gastric probes are used. If the thick probe is applied — the contents of the stomach flows out itself, during washing with a thin probe, it is necessary to extract with the help of a Janet's or "Record" syringe. The thick probe is entered through the mouth, the thin one is also possible to enter through the mouth, but it is entered through the nose then it irritates the throat less without retching. The equipment for gastric lavage: a watering can for 1–1.5 l, thick gastric probe (length up to 1.5 m), a jug with water or a Janet's syringe, solutions (water, 2% solution of soda, 0.1% solution of  $\text{KMnO}_4$  (light pink)), oilcloth apron, bucket for water, stomach contents. Techniques of procedure: the patient is sitting, leaning on the back of the chair, the head is inclined forward, knees are separated. Before gastric lavage it is necessary to dispose the patient psychologically and diligently explain him the meaning of the happening, what the patient and doctor should do. The depth for entering the gastric probe is the distance from the front teeth to the navel plus the width of the palm of the patient's hand.

*The bedpan* is applied for emptying the bladder and intestines for bedridden patients. There are enameled and rubber bedpans. Before giving the patient the bedpan it is rinsed with hot water. The nurse, with one hand under the sacrum, helps the patient rise a little, and with the right hand between the separated legs brings the bedpan under the gluteus. Cautiously she takes away the bedpan not to spill its contents on the bed, at once the bedpan is covered with an oilcloth or newspaper and is taken out to the toilet room. After defecation the patient needs to be washed.

*Flatus tube* is applied in meteorism, delay in emptying the intestines and gases, which happens frequently in patients after operative interventions. The soft rubber thick-walled tube with the length of 30–50 cm and a diameter of 3–4 cm is applied for this purpose. On the part which will enter the rectum it is necessary to make some punched holes. The tubes are boiled, greased with sterile vaseline or other fat; the patient separates his gluteus and with cautious movements the tube is entered into the anus so that 5–6 cm are left externally. The external end of the tube is wrapped in cotton wool or gauze. It can be lowered into a bedpan with water. Hold the tube in the rectum no more than 2 h (avoidance of bedsores).

*Enema.* In healthy people intestines are emptied once a day. After an operation patients frequently have constipation, in these cases if there are no contraindications, laxatives or enema are used. Also the bowel should be opened before radiographic examination, before operations and abortions. Enema is entering of a liquid into the lower part of the thick intestines. There can be cleaning, siphon, nutrient, medical and drip enemas.

*Cleansing enemas* are made with Esmarch's mug (enameled capacity of 1–2 l) with a rubber hose with the diameter of 1 cm and the length of 1.5 m. There is

a valve and tip on the end (glass, ebonite or plastic) with the length of 8–10 cm. Technique: the patient lays on the left side with legs bent and brought to the stomach, less often on his back (postoperative patients). The capacity and rubber tube are filled with water, the tip is greased with vaseline, the buttocks are separated, and the tip is entered with the depth of 5–6 cm. The tip is entered, first, upwards and forward, and then rotating towards the sacrum. The tip needs to be entered accurately so not to injure any haemorrhoidal nodes, if there are any, and the mucous membrane. The Esmarch's mug after opening the valve is lifted up to 1 m, in some cases it is necessary to add 1–2 l of water, constantly watching so that air does not enter the intestines. After entering water, the patient should keep it for 10 min, lying on his back, and only after that the intestines are emptied into the bedpan or toilet. In some cases it is necessary to use a finger to get feces from the ampoule of the rectum that was stopped up. For increasing the effect of enema a little bit of children's soap, 2–3 spoons of oil or glycerin, 1–2 spoons of kitchen salt, 30–40 ml of 3% of hydrogen peroxide, chamomile extract with valeriana root, etc. can be added to the water. The temperature of water should be near 20°C.

*Siphon enema.* When a cleansing enema does not help, a siphon one is applied. It works according to the principle of the connected vessels. Structure: a watering can, rubber tube 1.5–3 m in length and 1.5–2 cm of diameter with a control glass without a tip. It is better to use a thick gastric probe for this purpose. The temperature of water is 38°C (warm). Position of the patient is the same as for cleansing enemas. The end of the probe is moved towards the sigmoid intestine as far as possible, supervising its position in the rectum with the index finger. The watering can descended, filled with water and slowly raised up to 1–1.5 m. As the can gets empty, more water is added. As soon as the patient becomes disturbed, the can is lowered and inclined into the bucket where the liquid goes out. This is repeated several times, the amount of water used in a siphon enema is up to 10 l.

*Medical enemas* are general and local. Microenema — 50–100 ml of solution, the temperature is no less than 40°C. Before applying the medical enema, the cleansing one is done. The microenema contains nonpathogenic, soothing, anticonvulsive, somnolent substances. With the long-term use of medicinal substances, the drip method is applied and the enema is called drip. The speed of introduction is 60–80 drops a min. It is possible to give up to 3 l of liquid a day.

*Nutrient enemas* are applied when patients cannot be fed by usual methods. Nutritious solutions are entered into the rectum by the drip method (water, amino acids, spirit, glucose, fibers). Volume of nutrient enemas is 250 g, the temperature — 38–40°C, 1–2 times a day.

*Catheterization of the bladder.* It is applied in urinary retention. It is possible to carry out after reflex emptying of the bladder is attempted (we've already mentioned it above). Catheterization is the administering of a catheter into the cavity of the bladder. It is a dangerous manipulation, and each doctor should know its technique. There are different types of catheters: soft — rubber and firm — metal, female and male. Before using a catheter it is necessarily to disinfect it. Metal catheters consist of a handle, core and beak with two apertures. A male catheter has the length of

30 cm, female — 12–15 cm and the beak is less curved. The technique of catheter introduction in the woman: the woman is irrigated, with the left hand they separate the labia majora pudendi, and with the right one they enter the catheter through the external aperture of the urethra into the bladder. The metal catheter is held with the hand, the rubber — tweezers. Catheterization in women is relatively easy, in men — difficult. The length of the urethra in men is 20–25 cm and it has two physiologic constrictions. Technique of performance: the patient lies on his back; between the legs there is a urinal. They take the head of the penis in the left hand between the 2nd and 3rd fingers, disinfect it with sublimate or spirit. With the right hand and with the help of tweezers they enter the rubber catheter, disinfected and greased with liquid vaseline. The catheter is held with the help of the 5th finger. Technique of catheterization with a metal catheter: with the left hand take the head of the penis, the straight part of the catheter is directed towards the navel, and the beak downwards. They pull the penis onto the catheter so that the beak covers it completely. After that, the catheter elevates upwards vertically, guided by the flaps on the handle. It is impossible to spare much effort, because the bleeding is possible.

### **Preliminary preparation of the operative field**

The patient takes a hygienic bath or a shower, he/she changes underwear and bed linen. Cleansing the colon is held on the eve (evening) operations on abdominal organs or cleaning siphon enema up to clean water. In the morning, at least 3-4 hours before the surgery a cleansing enema is placed as the final stage of bowel cleansing.

In the morning of the day of the surgery the patient shaves hair in the area of the operative field.

If the wound is present, it is important to preparing the operative field. Bandage is removed, the wound is covered with a sterile cloth, the skin around the wound is wiped with alcohol or gasoline and hair is shaved. All movements are carried out in the direction to prevent contamination of the wound. After shaving the hair, tissue from the wound is removed, the skin around the wound is smeared with a 5% alcoholic solution of iodine and the wound is covered with a sterile cloth. The operating room the wound is treated with an alcoholic solution of iodine and it is isolated by sterile linen.

***Delivery of the patient to the operating room*** is carried on a medical wheelchair. In an emergency during transportation fluid resuscitation, mechanical ventilation can be performed.

If the patient has external bleeding and the tourniquet is applied, it is removed only during the operation.

Patients with acute intestinal obstruction are delivered to the operating room with a probe introduced into the stomach.

Psychological preparation of the patient for the surgery is aimed at calming him/her, reassure confidence in successful outcomes of the operation. The

patient should be explained the necessity of surgical intervention and the need for emergency surgical care.

When patients refuse surgery, it is necessary to explain the consequences of this delay in time. If the patient does not consent to the operation for health reasons, relatives should be involved in the conversation, attention of hospital managers should be drawn. Mark about the consent of the patient for surgery should be made in the preoperative epicrisis record.

A nurse with his/her warm, sincere attitude to the patient, a kind word supports him/her and helps to overcome fears and doubts about the final outcome of the operation.

The operation is performed by a surgical team: surgeon, assistant surgeon, operating sister. Doing surgery under general anesthesia includes anesthesiologist and anesthesists.

### **Questions for test control**

1. What is the preoperative period:
  - a) the period from the moment of receipt of the patient to the surgical department of the hospital until his recovery;
  - b) the period from the moment of receipt of the patient to the surgical department of the hospital until the end of the operation;
  - c) the period from the moment of receipt of the patient to the surgical department of the hospital before the beginning of the operation;
  - d) the time of operation?
  
2. The preoperative period begins with:
  - a) the moment of illness;
  - b) the moment of seeking medical help;
  - c) the moment of the patient's appeal to the admission department;
  - d) the moment of hospitalization of the patient in the surgical department;
  - e) there is no correct answer.
  
3. Preoperative preparation of the patient includes:
  - a) psychological preparation;
  - b) preparation of the operating field;
  - c) preparation of the cardiovascular system;
  - d) preparation of the respiratory system;
  - e) preparation of the gastrointestinal tract;
  - f) all answers are correct.
  
4. Before surgery, (for the night) the patient is prescribed:
  - a) sleeping pills or sedatives;
  - b) psychostimulants;
  - c) immunologic agents;
  - d) agents that stimulate regeneration;

e) all answers are correct.

5. To prepare the gastrointestinal tract for the elective surgery, it is necessary:

- a) to use a cleansing enema in the evening, before surgery, and in the morning, on the day of surgery;
- b) to use a cleansing enema just before surgery;
- c) to starve for 3 days;
- d) prescribe laxatives.

6. Preparation of the gastrointestinal tract before surgery under general anesthesia:

- a) nutrition of the patient through the gastric tube;
- b) if necessary, the stomach lavage;
- c) starvation of the patient within 3 days before surgery;
- d) putting an ice pack on patient's stomach.

7. The purpose of removing the contents of the stomach before surgery:

- a) for the prevention of aspiration;
- b) to facilitate the technique of operation;
- c) to improve respiratory function;
- d) all of the above are correct;
- e) there is no specific purpose.

8. What are the contraindications to gastric (stomach) lavage:

- a) large esophageal diverticules;
- b) esophageal stenosis;
- c) acute myocardial infarction, acute insult;
- d) epilepsy with frequent convulsive attacks;
- e) all answers are correct?

9. What is the position of the patient during gastric (stomach) lavage:

- a) sitting;
- b) reclining;
- c) lying on the back;
- d) lying on the left side;
- e) lying on the right side?

10. How much water is needed for gastric (stomach) lavage:

- a) 1–1.5 liter;
- b) 2–3 liter;
- c) 4–5 liter;
- d) 6–7 liter;
- e) 8–10 liter?

11. Indications for a cleansing enema:

- a) cleansing the lower part of large intestine;

- b) cleansing the terminal part of large intestine;
- c) cleansing the lower part of small intestine;
- d) cleansing the terminal part of small intestine;
- e) cleansing stomach.

12. Contraindications for an enema are everything except:

- a) acute anus diseases;
- b) constipation;
- c) rectal bleeding;
- d) rectal prolapse;
- e) severe general condition of the patient requiring complete rest.

13. Volume of water for a cleansing enema:

- a) 0.5 liter;
- b) 1.0–1.5 liters;
- c) 2.0–2.5 liters;
- d) 2.0 liters;
- e) 2.5 liters or more.

14. Position of the patient when performing a cleansing enema:

- a) sitting;
- b) reclining;
- c) lying on the back;
- d) lying on the left side;
- e) lying on the right side.

15. What should be done before urinary catheterization:

- a) do a cleansing enema;
- b) a careful cleaning of patient's genitals;
- c) preparation of the operating field;
- d) perform a gastric lavage?

16. The position of the patient during urinary catheterization:

- a) sitting;
- b) reclining;
- c) lying on the back;
- d) lying on the left side;
- e) lying on the right side.

17. Preoperative measures that reduce the risk of infection of the postoperative wound are:

- a) hygienic bath;
- b) shaving hair in the area of the surgical field 1 day before surgery;
- c) starvation during the day before surgery;
- d) bed rest.

18. To prepare the operative field before the planned operation it is necessary to:

- a) in the morning, 2 hours before the operation, shave the operating field;
- b) in the evening, before surgery, shave the operating field and treat it with chlorhexidine alcohol solution;
- c) before surgery, treat the operating field with 96% alcohol solution;
- d) take a shower before surgery and treat the operating field with a 1% decamethoxin solution.

19. Preoperative measures that reduce the risk of infection of the postoperative wound are:

- a) bed rest;
- b) shaving hair in the area of the operating field 2 hours before surgery;
- c) applying an alcohol compress to the area of the future operating field;
- d) prescribing sleeping pills on the eve of surgery.

20. Rules for shaving the operating field before elective surgery:

- a) shaving of the operative field just before the operation;
- b) shaving the operating field the day before surgery;
- c) shaving the operating field on the operating table;
- d) hair is not shaved.

### **Control questions**

1. What is preoperative period?
2. What activities does the preparation for a planned operation include?
3. How to sanitize the oral cavity before surgery?
4. What does the preparation of the patient's gastrointestinal tract for surgery include?
5. Enemas: cleansing, hypertonic, nutritions, siphon, oil.
6. Cateterisation of urinary bladder.
7. Stomach (gastric) lavage.
8. Application of colonic (rectal) tube.
9. Prepatation of mouth cavity.
10. Prepatation of cardiovascular system.
11. Preparin the operation field (area).
12. Psychological preparation of the patient.
13. Methods of transporting the patient to the operating room.

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro 'Drukar' SE "DMA MHCU", 2017. – 100 p.

3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

### **Additional**

1. Surgery: Text-book for English medium medical students / S.I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

#### ***TOPIC 4. Caring for patients in the postoperative period after surgery under local and general anesthesia***

##### **Objective of the class:**

1. To know the definition of the postoperative period and the phases of its course.
2. To be able to make the bed for the patient, to change bedding and underwear for the seriously ill.
3. Know how to care for the patient's skin and hair.
4. Know how to care for the eyes and ears of a patients.
5. To be able to use a bedpan and urine begs on a critically ill patient, and to wash a bedridden patient.
6. To be able to carry out complex prevention of bedsores, to take care of a patient with bedsores.
7. Be able to feed a seriously ill patient using a spoon, drinker, through the nasogastric tube.
8. Be able to handle a dead patient's corpse.

The postoperative period is the period from the end of the operation to the patient's recovery or his transfer to disability.

Early postoperative care task:

1. To restore the patient's health as soon as possible.
2. Prevent postoperative complications.
3. Recognize complications in time and provide assistance with it.
4. To alleviate the patient's condition.

Monitoring postoperative patients includes: assessment of the appearance (facial expression, position in bed, skin color); body temperature measurement; pulse control; blood pressure control; respiratory rate control; control of the work of the excretory organs (bladder, intestines); monitoring the dressing in the area of the postoperative wound; control of the drainages (monitor the nature, color and amount of drainage discharge, their tightness and reliable fixation to the patient's body, so that the drainages do not disconnect from the collectors and empty the containers from wound discharge in time); attention to the patient's complaints (timely pain relief); monitoring the implementation of medical appointments; control of laboratory characteristics.

Postoperative patient care includes: washing; toilet of the nose, eyes, ears, mouth; trimming nails; rubdown, body wash; washing away; combing; assistance with physiological functions; feeding; giving a drink; prevention of pressure sores; change of underwear; change of bed linen; gastric lavage; setting different types of enemas; catheterisation of urinary bladder; performing manipulations prescribed by a doctor.

In the postoperative period, there are 3 periods: early (from the end of the operation until 4-5 days after it), late (from 6-7 days after the operation until the

patient is discharged from the hospital), distant (from the moment of discharge from the hospital until the restoration of working capacity). Distinguish between the usual course of the postoperative period, when there are no severe dysfunctions of organs and systems, and complicated, when the reaction to an operative trauma is pronounced and significant functional disorders develop. In the postoperative period, three phases are distinguished: catabolic, reverse development, anabolic.

There are normal and complicated postoperative periods. In the postoperative condition of the patient there are three phases (stages): catabolic, anabolic and reverse development.

Catabolic phase lasts 3-7 days and is a defensive reaction, which aims to stimulate the work of protective mechanisms of the body through the rapid delivery of necessary energy and plastic materials. It is characterized by activation of the sympathetic-adrenal system, hypothalamus and pituitary, increased levels of protein breakdown. At that patients lose weight.

Clinical manifestations of catabolic postoperative phases affect the nervous, cardiovascular, respiratory systems, liver and kidneys.

Phase of reverse development lasts 4-6 days. Protein metabolism is normalized. Potassium excretion in urine is reduced. Water and electrolyte balance are restored. Signs of phase of reverse development are the relief of pain, normalization of body temperature, appearance of appetite. Patients are active. Their skin becomes of a normal color, breathing becomes deep, normal frequency, pulse rate is normal. Restored activity of the gastrointestinal tract: intestinal noises appear, gases start to move away.

Anabolic phase lasts 2-5 weeks. Its duration depends on the initial condition of the patient, severity of the operation, presence of complications. This phase is characterized by the normalization of metabolic processes in the body and function of organs and systems, weight gain, but complete restoration of body weight sometimes takes several months.

After surgery, patients arrive at the department or intensive care. These units are equipped for monitoring and record heart rate, electrocardiogram and others. Express laboratory makes possible to monitor indices of hemoglobin, hematocrit, concentration of electrolytes, blood proteins, acid-base status. There is everything what is needed in these departments: set of medicines and infusion plasma substitutes, apparatus for artificial respiration, sterile sets for puncture the subclavian vein, tracheostomy, defibrillator, sterile catheters, probes, sterile instruments and material for dressings. Before arrival of the patient the ward must be prepared, with wash cleaning, aired, bed should be covered with white linen, with no folds, in the cold season it should be warmed using warmers. For each patient the plant leaf of personal observations is made, which records data on heart rate, blood pressure, respiratory rate, level of venous pressure, water balance excretions, prescription hourly and it is made by a nurse.

Attention is drawn to the execution of “rule of three catheters”: nasal catheter (oxygen) catheter into the vein, catheter into the bladder, and in unconscious patients – a tube in the stomach for parenteral nutrition (“rule of four catheters”). The patient’s condition, data of subjective, objective examinations and special

methods of examination are recorded by a doctor into medical history (in the diary).

### **Critical indicators and their importance in the assessment of patients in the postoperative period**

Cardiovascular system: heart rate over 120 per min., lowered systolic blood pressure of 80 mm Hg and lowered or increased pressure up to 200 mm Hg, cardiac arrhythmias, lowering CVP – less than 50 mm water, and its increase more than 110 mm water.

Respiratory system: the number of breaths is more than 28 breaths per minute, significant shortening of percussion sound, dull sound on percussion of the chest, absence of respiratory noises in the area of blunting.

The skin and mucous membranes: pallor, acrocyanosis, cold clammy sweat.

Urinary system: oliguria: urine – less than 10 ml / hr., anuria.

Gastrointestinal tract: black stool, admixture of blood in the stool, constipation, significant muscle tension of anterior abdominal wall, positive symptom of Schyotkin- Blumberg, bloating, no noise of intestinal peristaltic.

Central nervous system: loss of consciousness, confusion, hallucinations, motor and contracting anxiety, coma.

State of the wound: excessive getting wet of bandages with blood, divergence of edges of the wound, prolapse of abdominal organs, excessive getting wet of bandages with pus, intestinal contents.

When one or more critical parameters appear in patients, junior and middle-level nurses must immediately inform the doctor.

### **Prevention of complications in the postoperative period**

It is reasonable to put the operated patient on a functional bed, which makes possible to provide a comfortable position. In order to improve blood flow to the brain the patient's position in bed for the first two hours should be on the back, without a pillow, and after coming around from anesthesia, a patient should be in a position, depending on the nature of the operation. Changing the position of the body in the early hours after surgery is allowed only with the permission from a doctor. The most convenient is the position on the right side, which facilitates the work of the heart, improves digestive function, and decreases the likelihood of vomiting. After surgery on the thoracic and abdominal cavities it is necessary to adopt the semi-sitting position which prevents congestion in the lungs, makes breathing and heart activity better, promotes faster recovery of bowel function. So that the patients do not move in the foot end of the bed, thrust footrest should be placed.

To improve drainage of the abdominal cavity, Douglas space, pelvic organs it is recommended to adopt the position of the raised head end (position of Fuller). After operations on the spine, and after some surgeries on the brain the patient should be in the position on the abdomen. One should always remember that any position of the patient, most convenient and most optimal should be often changed

(with the permission of the doctor) that will help reduce postoperative complications, raise the overall body, improve circulation.

In the area of the wound a pack with ice for the prevention of bleeding should be used. Ice packs contribute to narrowing the blood vessels of the skin and surrounding tissues and reduce the sensitivity of nerve receptors. Ice packs can be kept for 2-3 hours, and if necessary more, but every 20-30 minutes it should definitely be taken out for 10-15 minutes.

When caring for a wound when the bandage slipped, the nurse should fix it. When the bandage is quickly soaked with blood, it is forbidden to bandage it, a doctor must be called.

On the first two days after the surgery the following symptoms may appear: bleeding, shock, asphyxia, respiratory failure, breach of fluid and electrolyte balance, oliguria, anuria, enteroplegia.

On the following days after the surgery (for 3-8 days) may occur cardiovascular failure, pneumonia, thrombophlebitis, pulmonary embolism, acute liver failure, festering wounds.

Each of these complications requires clarification of the reasons for its removal.

The importance of postoperative thromboembolic complications is prevention, which includes an early activation of the patient, using anticoagulants for 7 days.

After general anesthesia the patients may have nausea and vomiting with aspiration of vomit and development of asphyxia and pneumonia. Prevention is to return the patient's head sideways to the left, further rinsing the mouth with boiled water. In the presence of respiratory failure, hacking cough it is mandatory to immediately call a doctor.

In the prevention of festering wounds it is really important to consider the matter of patient hygiene, clothing, bed linen. Larger wounds should be covered with sterile diapers. Contaminated clothes, sheets, diapers should be changed for the blood and discharge from the wound are good nutrient medium for microbes. All the mentioned refers to the duties of junior nurses.

Prevention of inflammation of the mouth (glossitis, gingivitis, mumps). The nurse helps the severely ill patients in oral care: rinse the mouth after eating, regular brushing is necessary to keep to the mucous membrane of the mouth not dry, for active saliva production.

Prevention of bedsores should be conducted from the early days of the postoperative period.

To prevent intertrigos, especially in patients with obesity, diabetes a nurse helps wipe inguinal folds with 50-70% alcohol, this place is sprinkled with talcum powder. In case of dermatitis areas should be smeared with zinc ointment.

*Bed sores prevention.* More often bed sores appear on the back of the head, shoulder, spinous process of the vertebra, sacrum, heels, iliac bone, pubis, sternum, etc. The skin on these areas is wiped with a disinfectant solution (camphor spirit, liquid ammonia, cologne, etc.), and a rubber circle covered with an oilcloth is laid under the areas where bed sores are probable. The rubber circle is laid so that the

sacrum is inside of it and the bed does not touch it. Every two hours, the position of the patient's body is changed.

*Washing the patient.* Equipment: jug, dressing forceps, sterile cotton tampons, water or disinfectant solution ( $\text{KMnO}_4$ , furacillin 1:5,000 etc.). The temperature of the solution should be 35–38°C. While washing under the buttocks, a vessel is laid. The patient lays on his back, legs are bent at the knees, hips are separated. They take the jug in the left hand, and pour the external genitals. A cotton tampon is used to wipe in the direction towards the anus. After that, the surface is dried with dry tampons. In women, syringing is applied with the help of a tip which is entered into the vagina with the depth of 6–7 cm.

*Processing the mouth.* The mouth of seriously ill patients is processed with the help of a spatula, tweezers and platens damped with a 2% solution of soda or a 5% solution of boric acid, potassium permanganate or warm water.

*Processing the eyes.* The eyes are washed with the help of sterile gauze tampons moistened in a furacillin 1:5,000. Instillation is performed by a special pipette, the lower eyelid is pulled down by the left hand and a drop is released closer to the nose. After a little waiting, the second drop is released, and the patient is suggested to close his eyes. The rest of the medicine is soaked up with a cotton swab. Ointments are put under the eyelid with a special spatula.

*Processing the ears.* While forming wax plug in seriously ill patients, drops of peroxide of hydrogen are put in the ear, and then the plug is taken out with the help of a gauze turunda. It is possible to wash away the wax plug with a Furacillin solution. The Janet's syringe for 150 ml is applied. The patient is seated sideways to the doctor and with his hands he holds a barrel-like wash-basin under the ear lobe. The auricle is pushed back and upwards. The cannula of the syringe is entered into the external acoustical duct and slowly the piston of the syringe is pressed. When the drug-solution is brought into the ear, the nurse moves the auricle back and upwards, the patient bends his head in the opposite direction, and the medicine is dropped into it, counting the amount of drops; after that the external acoustical duct is closed with a cotton swab.

*Care for the nose.* For removing scabs from the nose turundas are entered into the nasal entrance, moistened with vaseline oil or glycerin and in some minutes, while rotating them, take them out with the scabs.

*Gastric intubation* is applied to examine gastric juice, artificial feeding and gastric lavage. For this purpose thick and thin gastric probes are used. If the thick probe is applied — the contents of the stomach flows out itself, during washing with a thin probe, it is necessary to extract with the help of a Janet's or "Record" syringe. The thick probe is entered through the mouth, the thin one is also possible to enter through the mouth, but it is entered through the nose then it irritates the throat less without retching. The equipment for gastric lavage: a watering can for 1–1.5 l, thick gastric probe (length up to 1.5 m), a jug with water or a Janet's syringe, solutions (water, 2% solution of soda, 0.1% solution of  $\text{KMnO}_4$  (light pink)), oilcloth apron, bucket for water, stomach contents. Techniques of procedure: the patient is sitting, leaning on the back of the chair, the head is inclined forward, knees are separated. Before gastric lavage it is necessary to dispose the

patient psychologically and diligently explain him the meaning of the happening, what the patient and doctor should do. The depth for entering the gastric probe is the distance from the front teeth to the navel plus the width of the palm of the patient's hand.

*The bedpan* is applied for emptying the bladder and intestines for bedridden patients. There are enameled and rubber bedpans. Before giving the patient the bedpan it is rinsed with hot water. The nurse, with one hand under the sacrum, helps the patient rise a little, and with the right hand between the separated legs brings the bedpan under the gluteus. Cautiously she takes away the bedpan not to spill its contents on the bed, at once the bedpan is covered with an oilcloth or newspaper and is taken out to the toilet room. After defecation the patient needs to be washed.

*Flatus tube* is applied in meteorism, delay in emptying the intestines and gases, which happens frequently in patients after operative interventions. The soft rubber thick-walled tube with the length of 30–50 cm and a diameter of 3–4 cm is applied for this purpose. On the part which will enter the rectum it is necessary to make some punched holes. The tubes are boiled, greased with sterile vaseline or other fat; the patient separates his gluteus and with cautious movements the tube is entered into the anus so that 5–6 cm are left externally. The external end of the tube is wrapped in cotton wool or gauze. It can be lowered into a bedpan with water. Hold the tube in the rectum no more than 2 h (avoidance of bedsores).

*Enema.* In healthy people intestines are emptied once a day. After an operation patients frequently have constipation, in these cases if there are no contraindications, laxatives or enema are used. Also the bowel should be opened before radiographic examination, before operations and abortions. Enema is entering of a liquid into the lower part of the thick intestines. There can be cleaning, siphon, nutrient, medical and drip enemas.

*Cleansing enemas* are made with Esmarch's mug (enameled capacity of 1–2 l) with a rubber hose with the diameter of 1 cm and the length of 1.5 m. There is a valve and tip on the end (glass, ebonite or plastic) with the length of 8–10 cm. Technique: the patient lays on the left side with legs bent and brought to the stomach, less often on his back (postoperative patients). The capacity and rubber tube are filled with water, the tip is greased with vaseline, the buttocks are separated, and the tip is entered with the depth of 5–6 cm. The tip is entered, first, upwards and forward, and then rotating towards the sacrum. The tip needs to be entered accurately so not to injure any haemorrhoidal nodes, if there are any, and the mucous membrane. The Esmarch's mug after opening the valve is lifted up to 1 m, in some cases it is necessary to add 1–2 l of water, constantly watching so that air does not enter the intestines. After entering water, the patient should keep it for 10 min, lying on his back, and only after that the intestines are emptied into the bedpan or toilet. In some cases it is necessary to use a finger to get feces from the ampoule of the rectum that was stopped up. For increasing the effect of enema a little bit of children's soap, 2–3 spoons of oil or glycerin, 1–2 spoons of kitchen salt, 30–40 ml of 3% of hydrogen peroxide, chamomile extract with valeriana root, etc. can be added to the water. The temperature of water should be near 20°C.

*Siphon enema.* When a cleansing enema does not help, a siphon one is applied. It works according to the principle of the connected vessels. Structure: a watering can, rubber tube 1.5–3 m in length and 1.5–2 cm of diameter with a control glass without a tip. It is better to use a thick gastric probe for this purpose. The temperature of water is 38°C (warm). Position of the patient is the same as for cleansing enemas. The end of the probe is moved towards the sigmoid intestine as far as possible, supervising its position in the rectum with the index finger. The watering can is descended, filled with water and slowly raised up to 1–1.5 m. As the can gets empty, more water is added. As soon as the patient becomes disturbed, the can is lowered and inclined into the bucket where the liquid goes out. This is repeated several times, the amount of water used in a siphon enema is up to 10 l.

*Medical enemas* are general and local. Microenema — 50–100 ml of solution, the temperature is no less than 40°C. Before applying the medical enema, the cleansing one is done. The microenema contains nonpathogenic, soothing, anticonvulsive, somnolent substances. With the long-term use of medicinal substances, the drip method is applied and the enema is called drip. The speed of introduction is 60–80 drops a min. It is possible to give up to 3 l of liquid a day.

*Nutrient enemas* are applied when patients cannot be fed by usual methods. Nutritious solutions are entered into the rectum by the drip method (water, amino acids, spirit, glucose, fibers). Volume of nutrient enemas is 250 g, the temperature — 38–40°C, 1–2 times a day.

*Catheterization of the bladder.* It is applied in urinary retention. It is possible to carry out after reflex emptying of the bladder is attempted (we've already mentioned it above). Catheterization is the administering of a catheter into the cavity of the bladder. It is a dangerous manipulation, and each doctor should know its technique. There are different types of catheters: soft — rubber and firm — metal, female and male. Before using a catheter it is necessary to disinfect it. Metal catheters consist of a handle, core and beak with two apertures. A male catheter has the length of 30 cm, female — 12–15 cm and the beak is less curved. The technique of catheter introduction in the woman: the woman is irrigated, with the left hand they separate the labia majora pudendi, and with the right one they enter the catheter through the external aperture of the urethra into the bladder. The metal catheter is held with the hand, the rubber — tweezers. Catheterization in women is relatively easy, in men — difficult. The length of the urethra in men is 20–25 cm and it has two physiologic constrictions. Technique of performance: the patient lies on his back; between the legs there is a urinal. They take the head of the penis in the left hand between the 2nd and 3rd fingers, disinfect it with sublimate or spirit. With the right hand and with the help of tweezers they enter the rubber catheter, disinfected and greased with liquid vaseline. The catheter is held with the help of the 5th finger. Technique of catheterization with a metal catheter: with the left hand take the head of the penis, the straight part of the catheter is directed towards the navel, and the beak downwards. They pull the penis onto the catheter so that the beak covers it completely. After that, the catheter elevates upwards vertically, guided by the flaps on the

handle. It is impossible to spare much effort, because the bleeding is possible.

### Questions for test control

1. What is the "postoperative period":
  - a) the period from the moment of receipt of the patient to the surgical department of the hospital until his recovery;
  - b) the period from the moment of receipt of the patient to the surgical department of the hospital until the end of the operation;
  - c) the period from the moment of receipt of the patient to the surgical department of the hospital until the beginning of the operation;
  - d) the time from the operation to recovery of the patient or transfer to disability?
  
2. The postoperative period is divided into phases:
  - a) early – 1–2 days, late – 1–2 weeks, distant – until recovery;
  - b) early – 3–5 days, late – 2–3 weeks, distant – until recovery;
  - c) early – 8–9 days, late – 2–3 weeks, distant – until recovery;
  - d) early – 3–5 days, late – 4–5 weeks, distant – until recovery;
  - e) early – 3–5 days, late – 4–5 weeks, distant – until death.
  
3. In the postoperative period, the following phases (stages) are distinguished:
  - a) pathological;
  - b) physiological;
  - c) reverse development;
  - d) compensation.
  
4. In the postoperative period, the following phases (stages) are distinguished:
  - a) pathological;
  - b) physiological;
  - c) catabolic;
  - d) compensation.
  
5. In the postoperative period, the following phases (stages) are distinguished:
  - a) pathological;
  - b) physiological;
  - c) anabolic;
  - d) compensation.
  
6. In the postoperative condition of the patient there are three phases (stages):
  - a) catabolic, anabolic and reverse development;
  - b) dehydration, anabolic and reverse development;
  - c) catabolic, dehydration and reverse development;
  - d) catabolic, anabolic and dehydration.
  
7. The position of patients with bed rest, except:

- a) active;
- b) passive;
- c) forced;
- d) lying.

8. Change the patient's underwear every:

- a) 1–2 days;
- b) 4–5 days;
- c) 7–10 days;
- d) 12–14 days.

9. Change the patient's bed linen every:

- a) 1–2 days;
- b) 4–5 days;
- c) 7–10 days;
- d) 12–14 days.

10. To process the skin of a seriously ill patient, use:

- a) 96% ethyl alcohol solution;
- b) 10% potassium permanganate solution;
- c) 0.5% chloramine solution;
- d) 10% furacilinum solution;
- e) 10% camphor spirit.

11. Indications for a cleansing enema are everything, except:

- a) constipation;
- b) preparation for surgery;
- c) preparation for x-ray examination;
- d) acute intestinal infection.

12. Volume of water for a cleansing enema:

- a) 0.5 l;
- b) 1.0–1.5 l;
- c) 2.0–2.5 l;
- d) 2.0 l;
- e) 2.5 l or more.

13. Volume of water for siphon enema:

- a) 1–1.5 l;
- b) 2–3 l;
- c) 5–6 l;
- d) 10 l.

14. What antiseptic solution is used for genital care:

- a) 70% ethanol;

- b) 3% hydrogen peroxide solution;
- c) 0.9% NaCl solution;
- d) 25% magnesium sulfate solution;
- e) potassium permanganate?

15. Position of the patient after abdominal surgery:

- a) on the left side;
- b) on the right side;
- c) in the "frog" position;
- d) on the back with a raised head of the bed;
- e) on the back with a flat head of the bed.

16. Position of the patient after abdominal surgery in the early days:

- a) lying on the back;
- b) lying on the left side;
- c) lying on the right side;
- d) lying on the back with the head down;
- e) all answers are correct.

17. The most comfortable position for the patient:

- a) on the right side;
- b) on the left side;
- c) on the back;
- d) reclining.

18. Symptoms of postoperative paralytic ileus:

- a) abdominal retraction;
- b) hyperperistalsis, gas retention;
- c) gas retention, slow bowel movements, bloating;
- d) diarrhea, bloating.

19. What is a bedsore (pressure ulcers):

- a) injuries to skin and underlying tissue resulting from cold;
- b) injuries to skin and underlying tissue resulting from heat;
- c) injuries to skin and underlying tissue resulting from operating injury;
- d) injuries to skin and underlying tissue resulting from prolonged pressure on the skin;
- e) injuries to skin and underlying tissue resulting from drug intolerance?

20. The most characteristic place for the development of pressure ulcers:

- a) elbows;
- b) scapula;
- c) the sacral bone;
- d) buttocks;
- e) toes.

### **Control questions**

1. What is the postoperative period?
2. What periods are divided into the postoperative period?
3. What phases are divided into the postoperative period?
4. What are the tasks in the early postoperative period?
5. How should the ward and bed for the patient be prepared after the operation?
6. Rules for transporting the patient from the operating room to the ward.
7. What does follow-up of a postoperative patient include?
8. What does postoperative patient care include?
9. What can be the position of the patient in bed?
10. Name the ways to change the bed linen in a seriously ill patient.
11. What help does the patient need when changing underwear in the postoperative period?
12. Fever types. First aid.
13. Dripping eyes.
14. Applications of ointment in eyes.
15. Care of eyes.
16. Care of mouth cavity
17. Care of nasal cavity.
18. Care of ears.
19. Prophylaxis of bed sores.
20. Making patients bed.
21. Change of patient bed clothers.
22. Change of body clothes.
23. Usage of a bed – pan.
24. Toilet of genitals.
25. Irrigation.
26. Measuring blood pressure.
27. Feeling pulse.
28. Thermometry.
29. Enemas: cleansing, hypertonic, nutritions, siphon, oil.
30. Catheterisation of urinary bladder.
31. Stomach (gastric) lavage.
32. Application of colonic (rectal) tube.
33. Prevention of complications in the postoperative period.

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCU”, 2017. – 100 p.

3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

### **Additional**

1. Surgery: Text-book for English medium medical students / S. I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

## ***TOPIC 5. 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 disinfectant 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 with 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  $37^{\circ}\text{C}$  to  $38^{\circ}\text{C}$ . What is the temperature called:

- a) subfebrile;
- b) febrile;
- c) pyretic;
- d) hyperpyretic?

14. The patient's body temperature ranges from  $38^{\circ}\text{C}$  to  $39^{\circ}\text{C}$ . 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  $1^{\circ}\text{C}$ ;
- b) prolonged increase in body temperature with daily fluctuations of more than  $1^{\circ}\text{C}$ ;
- 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  $38-40^{\circ}\text{C}$ .

16. Relieving fever (febris remittens) is characterized by:

- a) prolonged increase in body temperature with daily fluctuations of not more than  $1^{\circ}\text{C}$ ;
- b) prolonged increase in body temperature with daily fluctuations of more than  $1^{\circ}\text{C}$ ;
- 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  $38-40^{\circ}\text{C}$ .

17. The patient has a morning temperature in the range of  $36.0-36.5^{\circ}\text{C}$  for two weeks, and an evening temperature in the range of  $37.5-38.0^{\circ}\text{C}$ . 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.
9. Fever types. First aid.
10. Care of skin, eyes, mouth cavity, nasal cavity, ears.
11. Making patients bed.
12. Change of patient bed and body clothers.
13. Usage of a bed-pan.
14. Toilet of genitals. Irrigation.
15. Measuring blood pressure. Feelling pulse.
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)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCU”, 2017. – 100 p.
3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.

5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

### **Additional**

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2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

## ***TOPIC 6. 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 box 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 box, check the sterilization indicators.
5. Use sterile tweezers to fold the corners of the drape to the sides and close the edges of the box 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 clips;
11. Lay out the sterile material or instruments on the inner surface of the second sheet;
12. Holding the clips 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 injections, 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 held 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 isohaemagglutination 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 m<sup>2</sup>;
- b) 15–20 m<sup>2</sup>;
- c) 20–25 m<sup>2</sup>;
- d) 30–35 m<sup>2</sup>.

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°;
- b) 25°;
- c) 35°;
- d) 45°.

15. For subcutaneous injection of medical drugs, the needle insert at an angle of:

- a) 15° into the base of the skin fold;
- b) 25° into the base of the skin fold;
- c) 30–40° into the base of the skin fold;
- d) 50–55° 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:

- a) 30 sec;
- b) 1 min;
- c) 3 min;
- d) 2,5 min;
- e) 10 min.

### **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)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCU”, 2017. – 100 p.
3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

## **Additional**

1. Surgery: Text-book for English medium medical students / S.I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

***TOPIC 7. 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 m<sup>2</sup>, and per 2 tables – 30 m<sup>2</sup>. 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 m<sup>2</sup>. 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 m<sup>2</sup>. 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

destroy. 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)  $12 \text{ m}^2$ ;
- b)  $22 \text{ m}^2$ ;
- c)  $32 \text{ m}^2$ ;
- d)  $42 \text{ m}^2$ .

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)  $16\text{--}18 \text{ }^\circ\text{C}$ ;
- b)  $18\text{--}20 \text{ }^\circ\text{C}$ ;
- c)  $24\text{--}26 \text{ }^\circ\text{C}$ ;
- d)  $25 \text{ }^\circ\text{C}$ .

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 hemarthrosis;
- 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) 1/2–1/3 of the dressing width;
- b) 1/4 of the dressing width;
- c) 1/3–1/5 of the dressing width;
- d) 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.
14. Rules of applying cotton 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.
18. Rules of applying cotton bandages on a neck.
19. Rules of applying cotton bandages on a chest.
20. Rules of applying cotton bandages on stomach, perineum.
21. Rules of applying cotton bandages on limbs.
22. Rules of applying plaster bandages.
23. Gypsum technology.

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
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4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I. Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

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2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

## ***TOPIC 8. 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 critic 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 caloricity 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 29003000 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 (cleanness, 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 soufflé' or puree or steamed meat soufflé' 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 6-7<sup>te</sup> 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, icecream, 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 pat

### **Recommended literature**

#### **The basic (basic)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro ‘Drukar’ SE “DMA MHCU”, 2017. – 100 p.
3. Methodological instructions on the topic “Care for the Surgical patients. Nutrition of Patients during postoperative period” for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic “Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.
5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

#### **Additional**

1. Surgery: Text-book for English medium medical students / S. I. Shevchenko, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.

## ***TOPIC 9. 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 staff,

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 other 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 lies 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-handedly 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.

*Preagonal 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 голоданием 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 inhaled 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 to 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".
9. Signs of cardiac arrest.
10. Rules of ABC resuscitation.
11. Rules for restoring airway patency.
12. Methods of artificial lung ventilation.
13. Rules of artificial lung ventilation.
14. Rules of indirect heart massage.
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)**

1. Patient Care (Practical Course): textbook. – 2nd edition / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko et al. – K., 2018. – 320 p.
2. Healthcare for surgical patients: Educational-methodological textbook / B. V. Guzenko, V. P. Kryshen, M. V. Trofimov, I. V. Haponov. – Dnipro 'Drukar' SE "DMA MHCU", 2017. – 100 p.
3. Methodological instructions on the topic "Care for the Surgical patients. Nutrition of Patients during postoperative period" for students of medical higher schools / Kravets O. V., Pyatikop G. I., Shevchenko V.P., Gresko I.Ya. Sumy: Sumy State University, 2018. – 26 p.
4. Methodological instructions on the topic "Care for the Surgical patients» / Pyatikop G. I., Shevchenko V. P., Kravets O. V., Gresko I.Ya. Sumy: Sumy State University, 2019. – 29 p.

5. Care of the patients in surgery. Test questions / Sumy: Sumy State University, 2020. Kravets O. V., Pyatikop G. I., Moskalenko R. A. – 158 p.
6. Butyrsky A. General surgery. The manual / A. Butyrsky. – Simpheropol: publishers CGMU, 2004. – 478 p.

### **Additional**

1. Surgery: Text-book for English medium medical students / *S.I. Shevchenko*, O. A. Tonkoglas, I. M. Lodyana, R. S. Shevchenko. – Kharkiv: KSMU, 2001. – 344p.
2. Hinkle Janice L. Brunner & Suddarth's Textbook of Medical-Surgical Nursing / Janice L. Hinkle, Kerry H. Cheever. Philadelphia, United States Lippincott Williams and Wilkins, 2017. – 2352 p.
3. Williams Linda S. Understanding Medical-Surgical Nursing / Linda S Williams. Pennsylvania, United States. F.A. Davis Company, 2015. – 1472 p.
4. Basical surgical techniques: Textbook / Gyorgy Weber, Janos Lantos, Balazs Borsiczky at all. University of Pecs, Medical School Department of Surgical Research and Techniques, 2008. – 111 p.