

<p>ОҢТҮСТИК QAZAQSTAN MEDISINA AKADEMIASY</p> <p>«Оңтүстік Қазақстан медицина академиясы» АҚ</p>	 <p>SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»</p>
<p>Department of “Introduction to Clinic” Methodological Guidelines for Independent Student Work in the Discipline “Introduction to Clinic”</p>	<p>75/11 Page 1 of 23</p>

## LECTURE COMPLEX

**Discipline:** “Introduction to Clinic”

**Discipline code:** IC 2213

**EP Name:** 6B10115 «Medicine»

**Amount of study hours/credits:** 90 hours / 3 credits

**Course and semester of study:** 2nd year, 4th semester

**The volume of lectures:** 9 hours

Shymkent, 2025y

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Lecture complex is developed in accordance with the working curriculum (syllabus) of the discipline “Introduction to Clinic” and discussed at the meeting of the department.

Protocol № 12 “27” 06 2025 y.

Head of the Department, PhD, Acting Associate Professor



Zhumadilova A.R.

**Lecture №1.**

**1. Topic: Monitoring the patient's condition. State of consciousness. Data collection. Objective nursing examination. Assessment of the patient's psychosocial condition.**

**2. Objective:**

To develop students' knowledge and practical skills in systematic patient observation, assessment of the level of consciousness, collection of objective data, as well as psychosocial assessment for the planning and implementation of nursing care.

**3. Lecture theses:**

In modern healthcare, the quality of nursing work is gaining increasing importance, and the requirements for professional training are becoming higher.

The success of patient treatment largely depends on proper, continuous observation and high-quality care.

Constant monitoring of patients is necessary to detect changes in their health status in a timely manner, provide adequate care, and, if necessary, deliver emergency medical assistance.

After reviewing the patient's complaints, medical history, and other relevant information, an objective examination is performed, in other words, an assessment of the "current state."

**General examination of the patient: rules and techniques. Evaluation of consciousness and body position. Assessment of body constitution.**

Subjective examination implies interviewing the patient. It is essential to create a confidential atmosphere and ask questions politely according to a specific scheme. During the first meeting, demographic data are collected: age, place of residence, and place of work.

During subjective assessment, the following information is obtained:

- Complaints — what made the patient seek medical care;
- History of present illness — onset, progression, treatment received;
- Medical history — development, past diseases, heredity, allergic tendencies, family relationships, financial status, and living/working environment;
- Presence of visual, speech, memory, or sleep disturbances;
- Spiritual background — attitude toward religion, habits, customs;
- Patient's self-assessment of their condition and attitude toward procedures.

While collecting subjective information, the nurse observes the patient, assessing their reactions and intellectual abilities.

Objective examination — direct inspection — should be conducted in a warm, draft-free room, ensuring privacy. The nurse's hands must be clean and warm. Unpleasant sensations for the patient must be avoided.

**Methods of objective nursing examination**

Inspection — visual assessment of the patient's general condition, consciousness, posture, facial expression, and body build. Visible mucous membranes, skin, and hair-covered areas must be examined.

Palpation (touching) — assessment of the condition of the skin (moisture, elasticity), subcutaneous fat, lymph nodes, muscles; detection of tenderness, pulse characteristics, and edema.

Percussion (tapping) — determination of the borders of internal organs and pathological changes in them.

Auscultation (listening) — identification of sound phenomena in functioning organs (heart, lungs) and assessment of arterial pressure.

Additional examinations and anthropometric measurements.

**Determination of the severity of the patient's condition**

State	Consciousness	Position relative to the bed	Facial expression	Severity of symptoms	Ability to self-care
Satisfactory	clear	active	adequate to the situation	weakly expressed	preserved
Moderate severity	clear active	forced suffering	adequate	expressed	partially lost
Severe	clear or disturbed forced	passive suffering	indifferent	expressed significantly partially	preserved or lost
Extremely severe	Pre-diagonal, agonal				

### Assessment of consciousness

#### Levels of consciousness:

**Clear consciousness** – the patient responds adequately, oriented to person, time, and place.

**Disturbed consciousness** – may present as depression or qualitative disturbance.

#### Depressed consciousness:

- **Clouded consciousness** – the patient is sluggish, disoriented, answers slowly or inappropriately.
- **Stupor** – the patient reacts only after shouting or stimulation, poorly oriented; **reflexes** and pain response preserved.
- **Sopor** – the patient does not respond to questions, reacts to pain by groaning, grimacing, or movement. Pupillary and corneal reflexes are preserved.
- **Coma** – severe CNS damage with complete absence of reaction to stimuli and reflexes, possible dysfunction of vital organs.

Qualitative disturbances of consciousness:

1. Delirium,
2. Hallucinations,
3. Disorientation,
4. Psychomotor agitation.

### **1. Patient condition monitoring**

Monitoring is a systematic, purposeful observation of the patient's condition aimed at early detection of changes and timely response.

#### Goals of monitoring:

1. Evaluate the effectiveness of treatment and care;
2. Early identification of deviations in condition;
3. Justification of nursing interventions.

#### Parameters to observe:

- Body temperature;
- Pulse rate (HR);
- Blood pressure (BP);

- Respiratory rate (RR);
- Oxygen saturation ( $SpO_2$ );
- Urination and defecation;
- Skin condition;
- Pain and its intensity;
- Behavior, anxiety level, response to treatment

## 2. State of consciousness

The state of consciousness is a crucial indicator reflecting the functional condition of the central nervous system.

### Levels of consciousness:

- **Clear consciousness** – the patient is oriented, responds adequately, communicative.
- **Drowsiness** – slowed reaction, decreased attention, confusion.
- **Sopor** – deep suppression of consciousness, response only to strong stimuli.
- **Coma** – complete absence of consciousness and response to stimuli.

### What the nurse observes:

- Response to verbal stimuli;
- Ability to maintain communication;
- Coordination of speech and movements;
- Spontaneous movements;
- Assessment using the Glasgow Coma Scale (if necessary).

## 3. Data collection

Data collection is the first stage of the nursing process, necessary for establishing a nursing diagnosis.

### Sources of information:

- The patient (if conscious);
- Relatives or accompanying persons;
- Medical records;
- Medical staff.

### Types of information:

- Subjective: complaints, sensations reported by the patient;
- Objective: findings from examination, measurements, laboratory results.

## 4. Objective nursing examination

Nursing examination is a method of purposeful assessment performed by the nurse to identify deviations from the norm.

### Methods:

- **Inspection:** general impression, skin condition, facial expression, posture;
- **Palpation:** pulse, edema, skin temperature;
- **Percussion:** as needed, under physician supervision;
- **Auscultation:** breathing, heart sounds (if within nurse's competence);
- **Measurements:** HR, BP, RR, temperature, height/weight, urine volume.

### Systems assessed:

1. Nervous system (consciousness, coordination);
2. Respiratory system;
3. Cardiovascular system;
4. Digestive system;

5. Urinary system;
6. Skin and mucous membranes.

### 5. Assessment of the psychosocial state of the patient

A nurse must evaluate not only the patient's physical condition but also their emotional and social well-being.

#### **Psychological assessment:**

1. Mood (anxiety, depression, aggression);
2. Level of stress and reaction to illness;
3. Ability to communicate and maintain contact.

#### **Social factors:**

1. Family and social support;
2. Living conditions and social environment;
3. Financial situation (affecting access to care);
4. Education and understanding of medical recommendations.

#### **Purpose of assessment:**

- To individualize nursing care;
- To support patient adaptation to illness;
- To prevent psychological complications.

#### **Conclusion:**

Comprehensive patient assessment is the key to high-quality nursing care. The nurse must be able to observe, record changes, communicate effectively, and use the obtained data to plan appropriate nursing interventions.

### **4. Illustrative material: Presentation**

### **5. Literature: Appendix №1**

#### **6. Control questions:**

1. How is the general examination of a patient conducted?
2. What is objective nursing examination?
3. How is the assessment of consciousness and body position performed?

### **Lecture №2.**

#### **1. Topic: Blood: general characteristics. Methods of blood examination. The lymphatic system and its function.**

**2. Objective:** To familiarize students with methods of blood examination, the lymphatic system, and its function.

#### **3. Lecture theses:**

#### **Blood and its components. Methods for studying blood components**

Blood is a complex fluid — plasma — in which formed elements are suspended: erythrocytes

(RBC), leukocytes (WBC), and platelets (PLT). After blood coagulation, following separation of the clot, the remaining fluid is called serum. Among the quantitative and qualitative methods for investigating the formed blood elements, the most common is the general clinical blood test: determination of hemoglobin concentration, color index, counts of erythrocytes and leukocytes, leukocyte differential, description of morphological features of blood cells, and assessment of erythrocyte sedimentation rate. Additionally, the numbers of reticulocytes and platelets are determined. These examinations are performed for all hospitalized patients and, when indicated, for outpatients. Often, investigations are limited to a less informative determination of hemoglobin, leukocyte count, and ESR (the so-called "triad").

### Blood collection and processing

Testing is recommended to be performed in the morning on an empty stomach or 1 hour after a light breakfast. Blood for a general clinical analysis is taken from the patient's finger, vein, or earlobe, and from the heel in newborns. It is not recommended to collect blood after physical or mental exertion, after medication administration (especially intravenous or intramuscular), after exposure to X-rays, or after physiotherapeutic procedures. In emergency situations, these rules may be disregarded.

### Capillary blood sampling

Capillary blood is obtained by puncture of: 1 — the pulp of the terminal phalanges of the fingers; 2 — the earlobe; 3 — in newborns, the heel or the big toe. The puncture should be sufficiently deep, approximately 3–4 mm. Blood should not be taken from inflamed or damaged sites. If the intended puncture site is cold and cyanotic, it should be prewarmed by massage or by immersion of the extremity in warm water. The skin is disinfected with 70% ethyl alcohol and then punctured. The first drop is removed with a cotton swab. From the subsequent drops, by gentle pressure, the required volume of blood is quickly collected. Blood from the finger surface is drawn into an individual sterile Panchenkov capillary tube.

**Lymph nodes** — organs of lymphocytogenesis and antibody formation, located along lymphatic vessels. The body contains 600–700 lymph nodes; their greatest numbers are found in the mesentery (200–500), at the root of the lung (50–60), and in the axilla (8–37). The weight of lymph nodes is 500–1000 g, which corresponds to approximately 1% of body mass. The size of lymph nodes ranges from 1 to 22 mm in length. Lymph nodes are located in loose connective tissue between skin and muscles, often adjacent to large blood vessels. They possess a connective-tissue capsule with an admixture of smooth muscle fibers, permitting nodal contraction and movement of lymph. The parenchyma of a lymph node is subdivided into cortical and medullary substance. Lymph nodes through which lymph flows from internal organs are termed visceral; nodes located on cavity walls are parietal or somatic. Nodes receiving lymph from internal organs and extremities are called mixed. Lymph nodes attain maximal growth by age 25; after age 50, the number of functioning nodes decreases, small nodes atrophy, some fuse with neighboring nodes, and as a result larger lymph nodes predominate in older individuals. Lymph nodes perform lymphocytopoietic, barrier-filtration, and immunological functions. On physical examination — inspection and palpation — mainly peripheral nodes are accessible; among internal nodes, only mesenteric nodes (mesentery of the intestine) may be evaluated. Examination is conducted at sites of greatest lymph node concentration: occipital, postauricular, parotid, submandibular and submental regions, neck, axillary, cubital, popliteal, and inguinal areas. During inspection, attention should be paid to: • size of lymph nodes, • skin color over lymph nodes, • integrity of skin over nodes (presence of fistulas and scars). In a healthy person,

contours of nodes cannot be seen at inspection because they lie fairly deep in the loose subcutaneous tissue. The skin over the nodes is normal in color; there is no edema of the skin and subcutaneous tissue, no erythema, and no breach of skin integrity.

### **Methodology for lymph node examination.**

In a healthy person lymph nodes are not visible and are not palpable. However, given the high prevalence of various dental diseases (caries, periodontitis, periodontal disease, etc.) in the population, submandibular lymph nodes can often be palpated without difficulty, and due to small, sometimes unnoticed injuries of the lower-limb skin, small (pea-sized) inguinal lymph nodes may be palpable. According to some authors, solitary small axillary nodes are also not a serious diagnostic sign.

Examination of lymph nodes is performed by inspection and palpation.

On palpation, the examiner determines lymph node size: comparing them with round objects (sizes "like a millet seed," "like a lentil," "like small (medium, large) pea," "like a hazelnut," "like a pigeon egg," "like a walnut," "like a chicken egg"). The number of enlarged nodes is specified, their consistency (testaceous, soft-elastic, dense), mobility, tenderness on palpation (a sign of inflammatory processes), fusion into conglomerates and adhesion to surrounding tissues, presence of edema of adjacent subcutaneous tissue and hyperemia of the corresponding skin area, and formation of fistulous tracts.

Palpation of lymph nodes is performed with the tips of slightly flexed fingers (usually the second through fifth fingers of both hands), gently and cautiously, using light sliding movements (as if "rolling" over the lymph nodes).

Palpation of lymph nodes is carried out in a defined sequence. First palpate the occipital nodes, which are located at the attachment of the neck muscles to the occipital bone; then proceed to the postauricular nodes, which are located behind the auricle on the mastoid process of the temporal bone. In the area of the parotid salivary gland palpate the parotid lymph nodes.

The submandibular (submaxillary) lymph nodes, which enlarge in various inflammatory processes of the oral cavity, are palpated in the subcutaneous tissue along the body of the mandible behind the masseter muscles (during palpation these nodes are pressed against the mandible).

Submental nodes are determined by moving the fingers from back to front near the midline of the chin region. Superficial cervical lymph nodes are palpated in the lateral and anterior neck regions along the posterior and anterior borders of the sternocleidomastoid muscles. Prolonged enlargement of cervical lymph nodes, sometimes reaching significant sizes, is noted in tuberculous lymphadenitis, lymphogranulomatosis (Hodgkin disease), and lympholeukosis (leukemia). However, in patients with chronic tonsillitis, chains of small dense nodes are often found along the anterior borders of the sternocleidomastoid muscles.

When palpating axillary lymph nodes, the patient's arm is slightly abducted. The palpating fingers are inserted as deeply as possible into the axillary fossa, after which the patient's abducted arm is returned to its initial position; the patient should not press the arm tightly to the trunk. Palpation of axillary nodes is performed with sliding movements of the palpating fingers

from top to bottom. Enlargement of axillary lymph nodes is observed with metastases of breast cancer, as well as with inflammatory processes of the upper limb.

When palpating the cubital lymph nodes, the examiner grasps the distal third of the patient's forearm with the palm of the hand and flexes it at the elbow joint to a right or obtuse angle. Then the index and middle fingers of the other hand palpate by sliding motions the sulci bicipiti medialis just above the humeral epicondyle.

Inguinal lymph nodes are palpated in the region of the inguinal triangle (fossa inguinalis) in a direction transverse to the inguinal (Poupart) ligament.

Popliteal lymph nodes are palpated in the popliteal fossa with the leg flexed at a right angle at the knee joint and the knee placed on a firm support.

#### **4. Illustrative material: Presentation**

#### **5. Literature: Appendix №1**

#### **6. Control questions:**

1. The concept of blood.
2. Technique of blood collection for analysis.
3. Lymph nodes and their function.
4. Name the locations of lymph nodes.

### **Lecture №3.**

#### **1. Topic: Diseases of the urinary system. Diagnosis and pre-medical care.**

**2. Purpose:** To familiarize students with diseases of the urinary system, their diagnosis, and pre-medical care.

#### **3. Lecture summary:**

The human urinary system is one of the most important systems of the body. It is responsible for maintaining the balance of biological fluids and vital microelements. Dysfunction of this system adversely affects the patient's well-being and causes considerable discomfort in daily life. The main organ of the urinary system is the kidney. To perform all its functions, this organ requires an intensive blood flow. Approximately one-quarter of the total volume of blood pumped by the heart is directed to the kidneys.

Types of diseases.

All diseases of the urinary system, by their causes of origin, are divided into congenital and acquired. The first type includes congenital malformations of the organs of this system: kidney underdevelopment — manifested by swelling, increased blood pressure, and metabolic disorders. The presence of such symptoms increases the risk of blindness, dementia, renal diabetes mellitus and diabetes insipidus, gout; as well as abnormalities in the structure of the ureters and bladder, which cause frequent urination. Many congenital diseases of the urinary system can be effectively treated through timely surgical intervention. Acquired diseases mainly occur as a result of infectious inflammation or physical injury.

### Urethritis

This is an infectious disease resulting in inflammation of the urethra. The main manifestations of the disease are: pain and burning during urination; characteristic discharge from the urethra; high white blood cell count in urine. Urethritis usually occurs due to bacteria, viruses, or fungi entering the urethra. Possible causes include poor hygiene, sexual contact, and, in rare cases, infection spread through the bloodstream from other infected organs.

### Cystitis

It is an inflammation of the mucous membrane of the urinary bladder. The following factors contribute to the development of the disease: urinary stasis; general hypothermia; excessive consumption of smoked foods, spices, alcoholic beverages; poor hygiene; inflammation of other urinary organs; and the presence of stones or tumors in the bladder.

### Pyelonephritis

This is a bacterial inflammatory disease affecting one or both kidneys. It is the most dangerous infectious disease of the urinary tract. Pyelonephritis often occurs during pregnancy due to an enlarged uterus pressing on the ureters. In old age, it commonly develops in men due to prostate enlargement, which obstructs urine flow.

### Diagnosis of diseases

Only a physician can diagnose urinary system diseases. The effectiveness of treatment depends on how soon the patient seeks medical attention. Therefore, at the first signs of disease, it is necessary to consult a specialist. The doctor will prescribe an examination, which usually includes laboratory tests (urine and blood analysis) and instrumental diagnostics (ultrasound, MRI, X-ray). For kidney function assessment, the Rehberg test is performed. A kidney biopsy is often used to study kidney tissue and establish an accurate diagnosis.

## Injuries of the kidneys, ureters, bladder, and urethra.

### a) Kidney injuries — the most common among urinary system injuries.

#### Types:

- Open injuries (wounds);
- Closed (blunt) injuries: contusion, hematoma, rupture of the kidney (renal pelvis, vascular pedicle, parenchyma).

Causes: Falling from height, car accidents, during sports or competitions (closed injuries); open injuries — caused by firearms or knives.

#### Symptoms:

- Rapidly increasing pain in the flank or lumbar region, radiating to the groin, external genitals, and inner thigh;
- Muscle tension in these areas on palpation;
- Hematuria;
- In open injuries — urine odor from the wound;
- Traumatic or hemorrhagic shock;
- Signs of urohematoma (fever, leukocytosis, increased urea in urine);
- Peritonitis (in case of intraperitoneal kidney injury).

#### I. Pre-medical care:

- Apply an aseptic dressing if there is a wound;
- Provide rest in a position on the healthy side or on the abdomen with the head end elevated;
- Apply cold to the injured kidney area;
- Transport the patient to a medical facility.

#### Treatment:

- For contusions or hematomas — conservative treatment: cold on the lumbar area, bed rest, hemostatic drugs;
- For kidney parenchyma rupture — surgical treatment (suturing for minor injuries) or nephrectomy followed by drainage.

The nurse should measure blood pressure and pulse and monitor the patient's appearance to detect signs of retroperitoneal hematoma progression.

**b) Ureter injuries** — rare, usually unilateral.

Causes: Penetrating abdominal wounds, blunt trauma to the abdominal wall or lumbar area, during gynecological or urological surgeries, or during instrumental procedures.

Clinical signs: Discomfort, pain on the injured side, unexplained fever, hematuria.

I. Pre-medical care: (same as for kidney injuries).

**c) Bladder injuries** — may involve extraperitoneal rupture (areas not covered by peritoneum) or intraperitoneal rupture (areas covered by peritoneum).

Causes: Falling from height, perforation of the bladder wall by pelvic bone fragments or metallic catheter, optical instrument damage during procedures, car accidents, compression by heavy objects.

The degree of bladder filling at the time of injury is significant (a full bladder is more vulnerable to direct impact).

Intraperitoneal rupture (often with rectal injury) — urine, blood, and feces enter the abdominal cavity, leading to an "acute abdomen" picture. Complication: Peritonitis.

Extraperitoneal rupture — severe pain in the lower abdomen, frequent false urges to urinate, small amounts of blood, possibly anuria. If urination continues, hematuria is observed. Urinary infiltration occurs in the perivesical tissue, causing swelling of the perineum, scrotum, labia, inner thighs, and buttocks, as well as traumatic shock.

I. Pre-medical care:

- Apply aseptic dressing if there is a wound;
- Provide rest in the "frog" position (roll under knees) lying on the back with the head end elevated;
- Apply cold to the lower abdomen;
- Provide pain relief (do not administer analgesics for closed injuries);
- Administer hemostatic agents (as prescribed by a doctor);
- Keep the patient warm;
- Transport to a medical facility.

**4. Illustrative material: Presentation**

**5. Literature: Appendix №1**

**6. Control questions:**

1. Name the clinical manifestations of the diseases.
2. Classification and syndromes of urinary system diseases?
3. Types of diagnosis and pre-medical care.

## Lecture №4.

**1. Topic:** Pre-medical care for diseases of the digestive and endocrine systems. Symptoms of digestive system dysfunction. Principles of providing pre-medical care for acute abdominal pain. Pre-medical care for abdominal pain and gastrointestinal bleeding.

**2. Purpose:** To form students' understanding of the symptoms of disorders of the digestive and endocrine systems, to teach them to recognize emergency conditions, and to provide pre-medical care in cases of acute abdominal pain and gastrointestinal bleeding.

### 3. Lecture summary:

#### 1. Symptoms of digestive system dysfunction

The digestive organs perform functions of digestion, absorption, and excretion of metabolic products. Disorders in their function are accompanied by characteristic symptoms that must be noted when providing care.

##### ◆ Main symptoms:

1. Abdominal pain (localized or diffuse);
2. Nausea, vomiting;
3. Heartburn, belching;
4. Abdominal distention, flatulence;
5. Stool disturbances (diarrhea or constipation);
6. Loss of appetite;
7. Weight loss;
8. Blood in stool or vomit;
9. Jaundice of the skin and sclera (in liver and biliary tract diseases).

⚠ In the presence of these symptoms, it is important to quickly assess their severity and nature in order to suspect possible acute conditions.

#### 2. Pre-medical care for diseases of the digestive system

##### ◆ Objectives of pre-medical care:

- Relief of the patient's condition;
- Prevention of deterioration;
- Maintenance of vital functions;
- Timely call for a doctor or ambulance.

##### ◆ For complaints of non-acute dyspeptic symptoms:

- Ensure rest;
- Exclude food intake until the cause is clarified;
- Give warm water to induce gastric lavage in case of poisoning (if no contraindications);
- In case of flatulence — administer activated charcoal;

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<p>Department of “Introduction to Clinic” Methodological Guidelines for Independent Student Work in the Discipline “Introduction to Clinic”</p>	<p>75/11 Page 1 of 23</p>

- Monitor vital signs (pulse, blood pressure, temperature);
- Call a physician for further examination and treatment.

### 3. Principles of pre-medical care for acute abdominal pain

Acute abdominal pain is always a life-threatening condition requiring emergency medical care. The causes may include appendicitis, pancreatitis, cholecystitis, ulcer, intestinal obstruction, etc.

#### ◆ What to do in case of acute abdominal pain:

- Ensure complete rest, lay the patient on the back or in a comfortable position;
- Exclude food and water intake;
- DO NOT give painkillers — they can “mask” the clinical picture;
- DO NOT apply heat — it may worsen inflammation;
- Monitor consciousness, pulse, and blood pressure;
- Call an ambulance immediately.

#### ◆ What is allowed:

Apply cold to the abdomen (through cloth) for severe pain before the doctor arrives; Record complaints and the time of their onset — for transmission to the doctor.

### □ 4. Pre-medical care for gastrointestinal bleeding

Gastrointestinal bleeding is a life-threatening condition. It may be associated with peptic ulcer disease, esophageal varices, tumors, or gastrointestinal trauma.

#### ◆ Symptoms:

- Vomiting with blood admixture (“coffee grounds” appearance);
- Black tarry stool (melena);
- Weakness, dizziness;
- Pale skin, cold sweat;
- Rapid pulse, low blood pressure;
- Loss of consciousness.

#### ◆ What to do:

- Lay the patient down with legs elevated (in case of fainting);
- Ensure complete rest;
- DO NOT give food or drink;
- Apply cold to the stomach area;
- Monitor pulse, blood pressure, and respiration;
- Call an ambulance urgently.

**Important:** Any gastrointestinal bleeding is a direct life threat and requires immediate hospitalization.

### ◆ 5. Features of pre-medical care in endocrine system diseases

The most common are conditions associated with diabetes mellitus:

#### ◆ Hypoglycemia (low blood sugar):

- Symptoms: weakness, sweating, tremor, hunger, loss of consciousness;

- Give sweet tea, juice, or sugar under the tongue (if conscious);
- If unconscious — lay the patient down, clear airways, call an ambulance.

**◆ Hyperglycemia and diabetic coma:**

1. Symptoms: dry mouth, frequent urination, acetone odor from mouth, weakness, confusion;
2. Do not give food or drink;
3. Urgently call an ambulance.

**Conclusion:**

Acute abdominal pain and signs of bleeding are conditions where every minute counts. A nurse or paramedic providing pre-medical assistance must quickly assess the situation, avoid causing harm, and make the right decisions before the doctor arrives. Knowledge of symptoms, contraindications, and permissible actions ensures patient safety.

**4. Illustrative material: Presentation**

**5. Literature: Appendix №1**

**6. Control questions:**

1. What symptoms indicate a life-threatening condition during abdominal pain?
2. What actions are prohibited when acute abdomen is suspected?
3. Name the signs of gastrointestinal bleeding.
4. What is the difference in assistance for hypo- and hyperglycemia?
5. Why should painkillers not be given for acute abdominal pain?

**Lecture 5.**

**1. Topic: Diseases of the Respiratory System. Diagnosis and Pre-medical Care.**

**2. Purpose:**

To familiarize students with the main diseases of the respiratory system, to teach them how to recognize their clinical signs, perform primary diagnostics, and provide pre-medical care in cases of acute and emergency respiratory conditions.

**3. Lecture Abstracts:**

**1. Respiratory Organs:**

The respiratory system includes:

- Upper respiratory tract (nasal cavity, pharynx, larynx)
- Lower respiratory tract (trachea, bronchi)
- Lungs and pleura

Main functions:

- Gas exchange (oxygen intake and carbon dioxide removal)
- Protective (immune) function
- Regulation of acid-base balance

## 2. Common Respiratory Diseases

- ◆ Acute diseases:
  - Acute bronchitis
  - Pneumonia
  - Acute laryngitis
  - Acute tracheitis
  - Bronchial asthma (attack)
  - Acute respiratory viral infections (ARVI), influenza
  - Pleurisy
  - Airway obstruction
  - Pneumothorax
- ◆ Chronic diseases:
  - Chronic bronchitis
  - COPD (Chronic Obstructive Pulmonary Disease)
  - Bronchial asthma
  - Occupational lung diseases (silicosis, tuberculosis, etc.)

## 3. Main Symptoms of Respiratory Diseases

Typical complaints and signs:

1. Cough (dry or productive)
2. Shortness of breath (inspiratory or expiratory)
3. Chest pain
4. Fever
5. Sputum production (character and color)
6. Difficulty breathing, choking
7. Wheezing during breathing
8. Cyanosis of lips and nails (bluish discoloration)
9. Hoarseness (in laryngitis)

## 4. Methods of Primary Diagnosis

At the pre-medical stage, a nurse or paramedic collects patient history and conducts examination including:

1. Patient complaints
2. Onset of illness (sudden or gradual)
3. Temperature measurement

4. Respiratory rate count
5. Oxygen saturation measurement ( $SpO_2$ , if pulse oximeter available)
6. Lung auscultation (if trained and equipped):
  - o Presence of dry or wet rales
  - o Diminished or harsh breath sounds

## 5. Principles of Pre-medical Care in Respiratory Diseases

### ◆ Goals:

1. Relieve breathing difficulties
2. Prevent complications
3. Support vital functions
4. Prepare the patient for medical examination or transport

### 6. Pre-medical Care for Specific Conditions

#### □ Asthmatic Attack (Bronchial Asthma):

Symptoms:

- Shortness of breath, wheezing on exhalation
- Dry cough
- Anxiety, panic
- Cyanotic lips, tachycardia

Care:

1. Ensure access to fresh air
2. Sit the patient upright (“orthopneic” position)
3. Assist in using the inhaler ( $\beta_2$ -agonists – salbutamol)
4. Monitor breathing and pulse
5. Call emergency services if no improvement within 10–15 minutes

#### ¶ Acute Pneumonia:

Symptoms:

- High fever
- Productive cough
- Chest pain during breathing
- Dyspnea

Care:

1. Bed rest
2. Temperature control
3. Adequate hydration

4. Antipyretics (as prescribed)
5. Observation and physician call

⌚ Airway Obstruction (Foreign Body):

Symptoms:

- Sudden choking
- Inability to speak or cough
- Panic, cyanosis

Care:

1. Perform the Heimlich maneuver (abdominal thrusts)
2. Back blows between shoulder blades
3. If unconscious — perform CPR (cardiopulmonary resuscitation)
4. Call emergency services immediately

☐ Pleurisy or Pneumothorax (air or fluid in the pleural cavity):

Symptoms:

- Sudden sharp chest pain
- Rapid breathing, dyspnea
- Chest asymmetry
- Decreased oxygen saturation

Care:

1. Semi-sitting position
2. Oxygen therapy (if available)
3. Urgent medical assistance
4. No medications or fluids until examined by a doctor

7. Algorithm of Pre-medical Care:

1. Assess the patient's condition
2. Ensure safety and air access
3. Place the patient in a comfortable position (sitting or lying)
4. Measure vital signs (respiratory rate, pulse, BP, SpO<sub>2</sub>)
5. Provide necessary aid (inhaler, Heimlich, cooling, etc.)
6. Call emergency medical services
7. Prepare and communicate patient data to the medical team

**Conclusion:**

Respiratory diseases can pose a life threat when complicated. Nurses and paramedics must be able to recognize symptoms, assess patient condition, and provide timely pre-medical assistance. Key skills include observation, rapid response, knowledge of contraindications, and adherence to proper action algorithms.

#### 4. Illustrative material: Presentation

#### 5. Literature: Appendix №1

#### 6. Control questions:

1. Name the main symptoms of respiratory diseases.
2. How can an asthma attack be recognized?
3. What are the features of pre-medical care in pneumonia?
4. Describe the algorithm of assistance in airway obstruction.
5. Why is body position important in cases of shortness of breath?

#### Lecture No. 6.

##### 1. Topic: Diseases of the cardiovascular system. Diagnosis and first aid.

2. Purpose: To form students' knowledge about the most common diseases of the cardiovascular system, their symptoms, methods of primary diagnosis and algorithms of pre-medical care in emergency situations.

##### 3. Lecture abstracts:

□ 1. General information about the cardiovascular system

The cardiovascular system (CVS) ensures the transport of oxygen, nutrients and the removal of metabolic products. These include:

1. The heart
2. The arteries
3. Veins
4. Capillaries

□ 2. Major diseases of the cardiovascular system

, Acute conditions:

1. Myocardial infarction
2. Hypertensive crisis
3. Angina pectoris
4. Acute heart failure
5. Collapse
6. Shock
7. Rhythm disturbances (arrhythmias)
8. Pulmonary embolism (PE)

◆ Chronic:

1. Hypertension
2. Coronary heart disease (CHD)
3. Chronic heart failure
4. Atherosclerosis
5. Varicose veins
6. Cardiomyopathy

🔍 3. Symptoms of cardiovascular diseases

, The most frequent complaints:

1. Pain in the heart (behind the sternum, with radiation)
2. Rapid or rare heartbeat (arrhythmia)

3. Shortness of breath
4. Swelling of the lower extremities
5. Increased or decreased blood pressure
6. Dizziness, fainting
7. Cyanosis of lips and nail plates
8. General weakness, rapid fatigue

 4. Initial diagnosis (at the stage of pre-medical care)

 A medical professional (nurse, paramedic) should:

1. Ask about complaints, the time and nature of the onset of symptoms
2. Measure blood pressure
3. Calculate the pulse (frequency, rhythm, voltage)
4. Evaluate breathing and level of consciousness
5. Measure the saturation (SPO<sub>2</sub>), if possible
6. Register an ECG (if there is equipment)

 5. Pre-medical care for CCC emergencies

 A. Myocardial infarction

Symptoms:

1. Severe constricting pain behind the sternum (> 20 min), radiating to the left arm, shoulder, neck
2. Cold sweat, pallor, fear of death
3. Rhythm disturbances, shortness of breath

Actions:

1. Sit down or lay down with your head raised
2. Provide fresh air access
3. Give nitroglycerin under the tongue (1 tablet every 5 minutes, no more than 3 times)
4. Give aspirin (chew if there are no contraindications)
5. Monitor pulse, blood pressure, breathing
6. Call an ambulance immediately

 B. Hypertensive crisis

Symptoms:

- A sharp increase in blood pressure (160-180 mmHg and above)
- Headache, tinnitus
- Nausea, dizziness
- Flashing of "flies" in front of the eyes
- Redness of the face, anxiety

Actions:

- Place the patient in a semi-sitting position
- Provide rest and air access
- Measure the pressure
- Give a blood pressure medication if previously prescribed (captopril, nifedipine, etc.)
- Call a doctor or ambulance in case of serious condition

. Angina pectoris

Symptoms:

Short-term pain behind the sternum caused by physical exertion or stress

It passes at rest or after taking nitroglycerin

Actions:

- To seat, to provide peace
- Give nitroglycerin under the tongue

Repeat after 5 minutes if the pain persists

- If the pain lasts more than 15-20 minutes , it is suspected of a heart attack → call an ambulance
- Acute heart failure (pulmonary edema)

Symptoms:

1. Severe shortness of breath, inability to lie down
2. Frothy pink phlegm
3. Lip cyanosis
4. Tachycardia, cold sweat

Actions:

1. Semi-sitting position
2. Provide air access
3. Oxygen (if available)
4. Urgent ambulance call
5. Constant monitoring of breathing and consciousness
6. Algorithm of pre-medical care in case of CCC emergencies
1. Assessment of the patient's condition (consciousness, respiration, pulse, blood pressure)
2. Giving an optimal position (more often — semi-sitting)
3. Providing fresh air access
4. Medical care (if prescribed or according to the standard)
5. Constant monitoring of the condition
6. Urgent call of the NSR team
7. Preparation of information for transmission to the doctor

➤ 7. Features of assistance:

- Do not leave the patient alone
- Do not exceed the dose of medications
- In case of loss of consciousness, monitor breathing and pulse, CPR if necessary
- At risk of a heart attack, do not allow the patient to move

Conclusion:

Diseases of the cardiovascular system are among the most dangerous in terms of the number of complications and mortality. It is important to quickly recognize acute conditions and competently provide pre-medical care in order to save the patient's life before the arrival of a doctor.

#### **4. Illustrative material: presentation**

#### **5. Literature: Appendix No. 1**

#### **6. Security issues:**

1. What are the main symptoms of a myocardial infarction?
2. What are the actions for hypertensive crisis?
3. What is the difference between angina pain and heart attack pain?
4. Describe the algorithm of actions for acute pulmonary edema
5. Why is it important to monitor blood pressure and pulse during emergency care?

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