

**MINISTRY OF HEALTH OF UKRAINE**  
**POLTAVA STATE MEDICAL UNIVERSITY**

Department of general surgery

**METHODICAL INSTRUCTIONS**  
**FOR STUDENT SELF-DIRECTED WORK**  
**WHEN PREPARING FOR AND DURING PRACTICAL CLASS**

<b>Study discipline</b>	<b>General surgery</b>
<b>Module №1</b>	<b>INTRODUCTION TO SURGERY. SURGICAL EMERGENCY CONDITIONS. FUNDAMENTALS OF ANESTHESIOLOGY AND INTENSIVE CARE</b>
<b>Content module 3.</b>	<b>Bases of anesthesiology and resuscitation.</b>
<b>Lesson theme №10</b>	Local anesthesia. Kinds. Indications, contraindications, complications.
<b>Years of study</b>	<b><i>III</i></b>
<b>Faculty</b>	<b>International</b>

Poltava

<b>Content module 3.</b>	<b>Bases of anesthesiology and resuscitation.</b>
<b>Lesson theme №10</b>	Local anesthesia. Kinds. Indications, contraindications, complications.

### **1. Relevance of the topic :**

Local anesthesia is of great importance in surgical practice. With this type of anesthesia possible not only to perform simple operations , but also more complex abdominal surgery . In connection with this acquisition and the ability to perform local anesthesia is very important. For the 3rd year students acquired knowledge and habits on the subject will be needed in the study of surgery and senior years . Professional surgical operation impossible without the use of local anesthesia.

### **2 . Learning Objectives :**

1. To get the value of local anesthesia during surgery and dressings patients.
2. Have an idea about feeling sick during local anesthesia.
3. Know the definition of local and general anesthesia.
4. Know the kinds of local anesthesia.
5. Know the medicines that are used for local anesthesia .
6. Know screenings and contraindications to local anesthesia , as well as the advantages over other methods of pain relief.
7. Master the techniques of infiltration anesthesia .
8. Learn how to conductive regional anesthesia Oberst - Lukashevich .

### **3 . Basic knowledge and skills necessary for studying the topic ( inter-disciplinary integration)**

#### **The student must have an idea :**

Discipline	Know	Be able to
anatomy	1. Location of the arteries to determine the heart rate and blood pressure 2, Anatomy of the upper respiratory tract, especially placement of language and its effect on airway	1. Determine the pulse of the vessels
physiology	1 Physiology of respiratory, cardiovascular and other systems, hemodynamic and respiratory rate in	2. Ensure the airway
pathophysiology	Etiology and pathogenesis of pain and the typical pathological processes (inflammation, hypoxia, etc.)	1. Assess whether violations of the respiratory system, blood circulation and other
Propedeutics Internal Medicine	Methods of testing a patient for organs and systems	
pharmacology	Basic pharmacology of inhaled anesthetics and neingalyatsionnyh, a premedication	Conduct a survey of the patient's major organs and systems (respiratory, cardiovascular, gastrointestinal tract, kidney, assessment of consciousness)

- About the importance of local anesthesia for surgical dressings and patients. -
- About feeling sick during local anesthesia. - Determination of local and general anesthesia.
- About the kinds of local anesthesia.

**. Student should know :**

1. What drugs used for local anesthesia .
2. Indication and contraindication to local anesthesia , and the advantages over other methods of pain relief
3. What is conduction block .
4. How complications occur during spinal anesthesia.
5. What is a " blockade" and its types .

**The student should be able to:**

1. Carry out infiltration anesthesia .
2. Conduct local regional anesthesia Oberst - Lukashevich .
3. Conduct brachial plexus anesthesia for Kulenkampf .
4. Conduct futlar blockade shoulder .
5. Conduct futlar blockade forearm.
6. Conduct futlar blockade calf.
7. Conduct neck vagosympatic blockade.
8. Conduct perirenal blockade.
9. To conduct the blockade of intercostal nerves.

**Mastering practical skill student :**

1. Select the method of local anesthesia and drugs to perform anesthesia .
2. Technique of infiltration anesthesia .
3. Technique of local anesthesia Oberst - Lukashevich .
4. Technique of conduction anesthesia ( block) the intercostal nerves.
5. Technique brachial plexus anesthesia for Kulenkampfom .
6. Technique of epidural ( epiduralis ) anesthesia.
7. Technique of spinal anesthesia.

**4.Tasks for self-study in preparation for the lesson.**

**4.1. The list of basic terms, parameters, characteristics, which the student must learn in preparation for the class:**

<b>Pathophysiological features of pain</b>	<b>Pain</b> - is a signal to any aggression that leads to cell damage and needs to respond to the quality of defensive reaction. The presence of pain is an obstacle for surgery, so it is need to be addressed
<b>Identify methods of anesthesia</b>	<p><b>Terminal (local) anesthesia</b> - blocking pain impulses anesthetic that has a direct impact on the sensory nerve endings.</p> <p><b>B) The regional (or anesthesia "for") anesthesia</b> - the blocking of pain pulse at a distance from the zone of operation, but not at the level of the CNS:</p> <p>a) The types of regional anesthesia:</p> <ul style="list-style-type: none"> <li>- Wires (receiver);</li> <li>- Anesthesia nerve plexus (paravertebral, plexus);</li> <li>- Epiduralis;</li> </ul>

- Spinal or subarachnoid.
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#### 4.2. Theoretical questions for the class:

1. The value of local anesthesia for surgical dressings and patients.
2. Feeling sick during local anesthesia.
3. The definition of local and general anesthesia.
4. Types of local anesthesia.
5. Drugs that are used for local anesthesia.
6. Indications and contraindications for local anesthesia, and the advantages over other methods of pain relief.

#### 4.3. Prakticheskie work (tasks) that are used in class:

1. Technique of infiltration anesthesia.
2. Technique of local anesthesia Oberst-Lukashevich.
3. Technique of conduction anesthesia (block) the intercostal nerves
4. Technique brachial plexus anesthesia for Kulenkampf.
5. Technique of epidural (epiduralnoy) anesthesia. 6. Tehnika of spinal anesthesia.
5. The content of the topic.

#### Structural and logic threads

<b>Identify methods of anesthesia:</b>	<p>A) Terminal (local) anesthesia - blocking pain impulses anesthetic that has a direct impact on the sensitive nerve endings.</p> <p>B) regional (or anesthesia "over") anesthesia - blocking of the pain impulse to the distance from the operation area, but not at the level of the CNS:</p> <p>a) The types of regional anesthesia:</p> <ul style="list-style-type: none"> <li>- Wires (receiver);</li> <li>- Anesthesia nerve plexus (paravertebral, pleksusna);</li> <li>- Epiduralna;</li> <li>- Spinal or subarachnoid.</li> </ul>
<b>The mechanism of action of local anesthetics</b>	<p>Prevent the emergence and holding back block pain impulse along nerve fiber.</p> <p>B) The basis of this mechanism is the inhibition of these substances passage of sodium ions via the sodium channels and to prevent nerve cell membrane depolarization, which disturbs the the passage of the pulse.</p> <p>B) This is the principle means mesnoanesteziruyuschie affect receptors conductors and spinal nerve centers, inhibiting their excitability and conductivity, resulting in pain relief can be achieved through blocking peripheral pain or analyzers or blockade (interruption) neural pathways in different parts of the passage of the pain impulse to the central nervous system.</p> <p>D) This mechanism is carried out in different kinds of local anesthesia: a surface, infiltration, wires (nerves, nerve plexus, epiduralna, lumbar).</p>
<b>Indications and contraindications for local anesthesia</b>	<p>Indications for local anesthesia:</p> <ul style="list-style-type: none"> <li>- Short-term minor surgery;</li> <li>- Practically all outpatient surgery;</li> <li>- Patients for whom there is a high risk of intubation anesthesia with muscle relaxants and SHVL;</li> <li>- Patients that suffer from the respiratory and cardiovascular disease;</li> <li>- Persons with middle and old age;</li> </ul>

	<ul style="list-style-type: none"> <li>- Weak and emaciated patients.</li> <li>B) a contraindication to local anesthesia: <ul style="list-style-type: none"> <li>- Hypersensitivity (sensitization) to local anesthetics;</li> <li>- Children's age (under 10 years);</li> <li>- Violation of the psyche, the increased excitability of nervous and mental;</li> <li>- Implementation of emergency operations, such as acute drawn out internal bleeding.</li> </ul> </li> </ul>
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## 5 . The content of the topic.

**LOCAL ANESTHESIA** - is the reverse loss of pain sensitivity of tissues in limited areas of the body, caused by the action of various chemical , physical or mechanical factors on nerve fibers or nerve segments .

Local anesthesia has a large share in the clinical practice. Today 55 - 60% of surgical procedures are performed under local anesthesia. It occupies a prominent place in the out-patient work during anesthesia small surgical interventions . This is due to its ease of use, relative safety , the lack of need for sophisticated equipment and special training of medical personnel. Wide acceptance of this method of anesthesia to facilitate the work O.V.Vishnevski , O.O.Vishnevski and their followers.

Indication: In all cases of contraindications to general anesthesia , cardiovascular and pulmonary failure, in elderly and senile patients in outpatient practice.

Contraindications : age 12 - 14 years , increased individual sensitivity to anesthetics , mental disorders , the presence of inflammation in the tissues , a categorical refusal patient.

Now in surgical practice for local anesthesia most frequently used such drugs : procaine in a concentration of 0.25 - 0.5% 10 - 20% lidocaine at concentrations of 0.25 - 0.5 % , 1 - 2 - 10% trimekain in concentrations of 0.25 - 1 - 2% dicain in concentrations of 0.25 - 0.5% 1 - 2% sovkain concentrations 0.5 - 1% , and others.

The mechanism of action of local anesthetics due to blocking the transmission of excitation in the locale of the nerve fibers , resulting in an area of anesthesia , which are innervated by the nerve of the data and its endings. They cause nedepolyariziruyuschiysya block holding the membrane in a polarized state.

### **Classification .**

Distinguish between these types of local anesthesia :

1. Superficial anesthesia( surface, terminal ),
2. infiltration
3. regional .

### **For regional anesthesia include:**

- a) conducting,
- b) spinal, epidural
- c) intravascular ( intraarterial and intravenous ),
- d) the intraosseous ,
- d ) plexus anesthesia ,
- e) trunkus anesthesia and others.

The most common in clinical practice : surface (terminal) , infiltration and different types of regional anesthesia. Less commonly used anesthetic intravascular , intraosseous , anesthesia cooling.

**Superficial anesthesia**( surface, terminal ) - type of anesthesia that is achieved by irrigation or mucosal lubricant 1 - 2% tetracaine solution , 5% solution of lidocaine , 0.25 - 2% , and some other anesthetic anesthetics that can be absorbed through mucous membranes. Such a procedure was used in ophthalmology , otolaryngology , surgery, endoscopic examination before tracheal intubation , etc.

**Infiltration anesthesia** . Preparation operations for infiltration anesthesia is the same as with general anesthesia . It is extremely important preparation psyche of a patient . During the operation, the role of " mental anesthetist " can perform one of the students . Anesthesia was beginning to infiltrate the incision under the skin by forming a so-called " lemon peel ." To do this, local anesthetic is injected intradermally through a fine needle . Next carried layered tissue infiltration to the proper width and depth , depending on the type of operation and the amount of interference.

For infiltration anesthesia is used mainly 0.25-0.5 % trimekain or lidocaine . Acceptable unit dosage for adults in the case of 0.5% novocaine - 500 ml 0.25% - 750 ml . And provided that the solution is poured over the operations during cutting of tissue , the dose can be increased up to 1000 - 1500 ml . For 1 hour of operation allows up to 2.0 g of novocaine ; trimekain single dose should not exceed 20 mg / kg, and lidocaine - 15 mg / kg.

Infiltration anesthesia technique for O.V.Vishnevski (1922 ) combines the positive attributes of infiltration and block anesthesia . The method is based on the anatomical features of the structure of facial structures - carrying cases . A solution of 0.25 % novocaine injected into the cases of 5 - 10 ml syringe under the hustle and applies them to the nerves and introduced them endings. O.V.Vishnevsky called his method " tight creeping infiltration ." It is necessary to emphasize the value and availability of the method in clinical practice.

### **Regional Anesthesia**

**Spinal anesthesia** refers to a form of regional anesthesia. It is used for pain control certain body part or the topographic area . With this type of anesthesia 5 % novocaine solution , 0.5-1 % solution sovkaimum or Xylocaine ( 70 mg . ) Is introduced into the subarachnoid space through the dural puncture with a special needle with a well-chosen stylet (needle Bier ) . Anesthetic rapidly binds to the nerve roots and comes anesthesia throughout the lower part of the body from the puncture site . More often than not the place for lumbar puncture is a gap between the III-IV or II - Iipoyasnichnymi vertebrae. The duration of such anesthesia from 1.5 to 3 hours. The introduction of the anesthetic into the subarachnoid space above the level of XII thoracic vertebra may lead to a breach of the respiratory and vasomotor centers . Now spinal anesthesia is used mainly in the case of operations on the organs that are located below the diaphragm and lower endings .

Immediate complications of spinal anesthesia can be shown to reduce blood pressure, respiratory disorders and bulbar palsy centers. For the prevention of immediate complications recommend anesthetic administered simultaneously with 1.0-2.0 % solution of caffeine , or 1.0 - 5.0% solution efedrinu .

When you stop breathing or cardiac abnormalities required immediate intubation and the use of mechanical ventilation, chest compressions , at significant fall in blood pressure measures apply to blood transfusion and blood products .

**Epidural anesthesia** - a kind of block anesthesia . Shown in the case of surgery of the lower abdominal cavities , urological, proctologic operations and operations on the lower endings . It is the method of choice in elderly and senile patients , in patients with cardiovascular disease , renal dysfunction , liver, in obstetric practice. Epidural anesthesia is widely used to eliminate postoperative pain , faster recovery bowel motility after surgery , in the complex treatment of peritonitis , intestinal obstruction , pancreatitis , etc.

Epidural anesthesia was performed with the patient sitting or lying on your side with your feet pressed against his stomach , the analgesic effect is due to the blockade of the spinal cord anesthetic is introduced into the peridural space between the two leaves of the dura mater and has the form of a narrow gap filled with adipose tissue , lymphatic vessels and venous plexus . Through this space are the front and rear spinal nerve roots , it is not connected to the main and the spinal cord , so the anesthetic does not affect these structures .

Puncture epidural space can be formed on any region of the spine depending on the level of anesthesia . First, anesthetize the skin. A thin needle without syringe injected between the vertebrae are clearly on the back of the center line to a depth of 2-2.5 cm in a collision with a yellow ligament ( resistance is felt ) . Then, the needle attached to a syringe with an isotonic sodium chloride solution and an air bubble therein. Further advancement of the needle is controlled by changing the shape of air bubbles by pressing the plunger of the syringe . As soon as the needle enters the space epidural resistance decreases , the solution is poured into the tissues easily . If you disconnect the syringe and needle from her holes should not leak fluid. Then injected with 2-3 ml . liquid stamped to the dura and to prevent its perforation . As the needle is placed thin PVC catheter through which fractionally injected anesthetic during surgery and in the postoperative period . First, a test dose of anesthetic ( 1 /3 of the target ), and after 3-5 min. - The entire dose . Most often used with 2% lidocaine solution ( 5-10 mg / kg. ) Trimekain 2% solution ( 5 mg / kg. ) . Anesthesia occurs within 15-30 minutes and lasts for 1.5-2 hours

Complications are rare. Possible hypotension, respiratory disorders , nausea , vomiting , cramps , headache, sciatica traumatic at the site of puncture.

#### **Other types of modern anesthesia :**

**Leptoanalgesia** ( NLA ) - a type of combined anesthesia . The analgesic effect is achieved by combining neuroleptics ( droperidol ) and narcotic analgesics ( fentanyl ) . The result is manifested by reduced mental and physical activity , as indifference, loss of sensation with preservation of consciousness. It is used in combination with local anesthesia or inhalation anesthesia . Stabilizes the functioning of the heart and blood vessels during the execution phases of traumatic surgery.

**Electromedicen anesthesia** ( electronarcosis , Lemon , 1902), one of the types of general anesthesia using the electric current of a certain frequency , voltage and forces on the brain.

It is used in combination with anesthetics , anticonvulsants and sedatives . Characterized by pain except consciousness, hemodynamic stability , dilated pupils . To

conduct electroanalgesia industry produces such devices " Elektronarkon - 1", " Lenar - 1", " Electro -4T ", " EA- 30-1 ." This method is used in obstetrics , under difficult toxemia , burns in patients with allergies, poisoning , diseases of the cardiovascular system. Complication electronarcosis : Possible burns to the ground applying electrodes , cramps , headache , hypertension .

The **acupuncture analgesia** - pain relief with acupuncture ( acupuncture ) . To do this, use a special needle of stainless steel with a diameter near 0,4 mm . The needle is inserted or "classical point", located on the so-called meridians at a distance from the place of execution operational action or under the skin on both sides of the incision . Reduction in pain sensitivity ( gipoanalgeziya ) is achieved by stimulation of nerve endings. But with this method of general anesthesia does not occur . The acupuncture analgesia is used as a component of combined anesthesia in the postoperative period for pain relief , reduction of the use of narcotic analgesics , etc. For wide application of this technique for pain relief operations are being studied.

## **6. Materials for self-control.**

Students **should be**

aware of the concept of anesthesiology and intensive care , anesthesia maintenance phases of surgery ,

understand the principles of general and regional anesthesia ,

know the main drugs used during anesthesia ,

to know and distinguish the possible complications of anesthesia .

Analyze the patient's general condition .

The ability to perform one or the other type of anesthesia.

Explain the choice of anesthesia.

Suggest a survey to select the method of anesthesia.

Classify the methods of anesthesia , drugs for anesthesia.

To analyze the patient's condition , justify the choice of method of pain relief .

### **6.1. Tasks for self-control .**

#### **question**

1. The value of local anesthesia for surgical dressings and 2 patients . Feeling sick during local anesthesia. 3 . The definition of local and general anesthesia. 4 . Types of local anesthesia. 5 . Drugs that are used for local anesthesia 6. Indications and protipokazaniya to local anesthesia , and the advantages over other methods of pain relief. 7. Technique of infiltration anesthesia .

#### **Problem:**

1. Choose a method of local anesthesia and drugs to perform anesthesia . 2. Tehnika of infiltration anesthesia . 3 . Technique of local anesthesia Oberst - Lukashevich . 4 . Technique of conduction anesthesia ( block) the intercostal nerves 5. Tehnika brachial plexus anesthesia for Kulenkampfom . 6. Tehnika of epidural ( epiduralna ) anesthesia. 7. Tehnika of spinal anesthesia

### **.6.2 . Situational problems .**



Task 1 , during the operation on the lungs in patients emerged cardiac arrest . Regular cutting it resorted to recover only after 10 minutes. In which bodies profound changes have taken place as a result of hypoxia ?

A. spleen B. near C. Liver Kidney D. V E in brain cortex main

Task 2 . In the blood showed a reduction in the content of hemoglobin. What is the function of the blood is violated in this case ?

A. Transport of hormones B. Transport of gases C. Ensuring immunity D. Collapsing E. Transport of nutrients

Task 3 . Novocaine solution concentration which is used for conduction anesthesia ?

A. 0.25 % B. 0.5% C. 2 % D. 5 %

### **Test problems in the volume of "Step 1" and "Step 2" .**

Task 1 , Novocaine what concentration is used for infiltration anesthesia?

A. 0.25 % B. 0.5 % C. 1 %

D. 2% 5 % E.

Task 2 . What is the maximum amount of 0.5 % novocaine solution can be introduced parenterally to the patient 1 hour of operation?

A. 200 ml V. 400ml S. 600 ml

D. 100 E. ml 50 ml

Task 3 , What part of body weight is water in healthy adults ?

A. 30-40% B. Pp. 50-60% 60-70 %

D. 70-80 % 80-90 % E.

Task 4 . which of the following drugs belong to local anesthetics ?

A. novocaine , ultrakain

B. halothane , nitrous oxide S. Kalipsol , ketamine D. thiopental, propofol number of E.

Task 5 . which of the following drugs belong to inhaled anesthetics ?

A. novocaine , ultrakain B. halothane , nitrous oxide S. Kalipsol , ketamine

D. thiopental, propofol number of E.

Task 6 . which of the following drugs belong to intravenous anesthetics ?

A. novocaine , ultrakain B. halothane , nitrous oxide S. Kalipsol , ketamine , propofol

D. Live E. anestezin

Task 7 . specify the temperature threshold of life:

- A 15-20 ° C 20-30 ° C B. C 45-50 ° C  
D. 35-40 ° C 55-60 ° C E.

### 6.3 Tests for self-control (basic knowledge )

Tests and testing task source of knowledge .

1. Under which conditions apply anesthesia methods on Lukashevich - Oberst ?

- 1) paranephritis
- 2) ingrown toenail
- 3) paraproctitis
- 4) pancreatic necrosis
- 5) felon
- 6) asphyxia

2 . What solutions can be used for local anesthesia ?

1. furagin
- 2 . dicain
- 3 . halothane
- 4 . gemodez
- 5 . novocaine
6. polyglukin

3 . How does the pain on the basal metabolic rate ?

1. increased release of adrenaline
- 2 . decreases in blood separation teroksinu
- 3 . decreases the release of histamine
- 4 . decreases the release of serotonin
- 5 . increases prostaglandin release
6. reduced allocation of quinine

4 . What is the solution of novocaine used for intraosseous anesthesia?

1. 0.5%
- 2 . 2%
- 3 . 3%
- 4 . 1%
- 5 . 0.25%
6. 5 %

5 . Fashion for retromammary anesthesia?

1. abscess phase of mastitis
- 2 . infiltration phase of mastitis

- 3 . gangrenous mastitis phase
- 4 . paramastitis
- 5 . serous phase of mastitis
- 6 . subaoreolyarny abscess

6. Why use vagosimpaticheskoy blockade ?

1. for the prevention of reflex apnea
- 2 . removal enteroparesis
- 3 . for the treatment of pleuro - pulmonary shock
- 4 . for the prevention of ventricular fibrillation
- 5 . for the prevention of pulmonary pleura - shock
6. for easing muscle and prevention of paraplegia

7. Anesthesia after epidural anesthesia comes with:

1. 1.5 minutes
2. 10 minutes
3. 15 minutes
4. 20 minutes
5. 25 minutes
6. 30 minutes

8. For what types of local anesthesia to the previous overlay harness ?

1. cryanesthesia
- 2 . Intravascular anesthesia
- 3 . epidural anesthesia
- 4 . intraosseous anesthesia
- 5 . combined anesthesia
6. spinal anesthesia

### **Case studies for the source of knowledge**

1. Patient L. , 37 years old , work cleaning the face , was admitted to hospital with kalitkovoy inguinal hernia. Sick for three years. Over the last three months of double hernia infringed upon , but pinched quickly resolved without outside help. Operative treatment . Determined that it is advisable to perform the operation under local anesthesia. Posed a test for sensitivity to novocaine , the result of which is regarded as strongly positive . Is it possible to perform the intervention under local anesthesia ?

2 . Patient M. , 43 years old , driver, complains of pain in the area epigastralnom , heartburn , loss of body weight, seasonal exacerbation of the disease. Sick for 8 years with duodenal ulcer . In connection with the next exacerbation , during the month was treated in gastroenterological department without a pronounced effect . Translated to the surgical hospital. On the second day after admission suddenly began vomiting, bloody thick . Diagnosed with bleeding duodenal ulcers , lack of circulating blood volume of 1.5 liters , the blood is not changed, there is no shortage of extracellular fluid . Held conservative hemostatic therapy . The bleeding stopped. A day is defined reduction in the number of

red blood cells and hemoglobin in the blood, a slight deficit of BCC, interstitial fluid deficit of 18 %. What factors influenced its redistribution , which ensures the constancy of the blood and water areas of the human body ? In the case of surgery or stomach resection possible under local anesthesia by infiltration of its ligaments around the perimeter ? What is the doctrine of NI Pirogov futlyarnom structure of tissues ?

3 . The patient , aged 35, a seamstress , was admitted to hospital with chronic paraproctitis . In a study of other diseases have been identified . Protipokazany to operations not. Displaying carving Noritsu . Executed cerebrospinal anesthesia at L Iv-V 1% solution sovkainu . What anatomical structures passed a needle at the site of the spine between the vertebrae L IV-V, before you enter into the spinal canal ? Why not spend the cerebrospinal anesthesia at the level of the vertebra above the D-XII?

4 . Patient R. , was admitted with complaints of pain in the left armpit area , general weakness , malaise, fever up to 38 degrees. He considers himself a patient close 24 hours when there was pain at the site of the left axilla. When viewed in this section is determined by the size of 3x2 cm infiltration . Hyperemia of the skin around it , there are signs of fluctuation. What are the indications for surgery ? What type of local anesthesia you offer ?

5 . Patient T. , was admitted to the proctology department with complaints of pain in the area of the anus , which is amplified during the act of defecation, pus near the rectum, general weakness. Physical examination at 2 cm from the anal verge , 9 g.u.ts. determined by external Noritsu hole with a diameter of 0.2 mm. By digital rectal examination in the area defined by the inner rear of the crypt opening Noritsu . Palpation of her painful . Progress Noritsu transfinkterny . DIAGNOSIS: Rear transsfinkternaya rectal Noritsu . Displaying surgery - removal of Noritsu Gabrielya for the first procedure .

What type of local anesthetic should be used?

6. Patient M. admitted to the surgical department with a diagnosis of abscess scar abdominal wall , the state of repair after ileostomy . When viewed in the right half of the abdomen , at the site of the scar is determined by a moderately dense infiltrate of painful 10x15 cm with a softening in the center . Under local infiltration anesthesia made the disclosure of the abscess. In the course of anesthesia was mistakenly used a 10% solution of lidocaine , resulting in the patient arose picture of acute poisoning.

To be clinical manifestations of poisoning anesthetic agent ?

7. L. The patient was admitted to hospital with complaints of pain in the area of the anus , the selection of bright red blood from the rectum during defecation . With digital examination of the rectum by an increase in internal hemorrhoids. At 6:00 conventional dial - chronic anal fissure with kaloznimi edges, up to 1 cm in a planned manner patient underwent surgery . For anesthesia used epiduralno - caudal anesthesia . After 15 minutes , after the start of the operation , the patient suddenly lost consciousness , having seizures.

That steps should be taken to deal with the complication that has arisen?

8. In Patient N. , on the third day after apendektomii , there were manifestations of intestinal obstruction may spike genesis . For the differential diagnosis shown perirenal novocaine blockade .

Where to perform a puncture, how to enter the anesthetic ?

9. In the patient N., 28 years old, with subcutaneous felon middle phalanx II fingers of his right hand raised body temperature to 38c C. There was a throbbing pain , swelling of the finger. What is your strategy ? Choose the type of anesthesia .

10 . Patient K. , 74 years old , was admitted to the hospital for emergency care at the right inguinal clamped fins . Sick concomitant diseases : asthma , diabetes. What do you do? What type of anesthesia use and why ? What is the concentration of the solution of novocaine you apply in this case?

11. After the operation apendektomii for acute appendicitis abscess ( infiltratsiynoy under anesthesia ) in patients after 3 hours there was redness , dermatitis, swelling of the tissues at the site of surgery , the symptoms of cardiovascular collapse ( pallor, cold clammy sweat , cold endings, a sharp decline in arterial crush ) . On the development of any complications you can think of? Assign treatment.

12. Patient N. , 67 years old, was carried out spinal anesthesia for the amputation of the left lower down ( about wet gangrene ) . During anesthesia, the patient started to complain of stuffiness , lost consciousness. The skin became cyanotic , blood pressure dropped to 80/ 60 mm Hg . What complication occurred in a patient?

13. In the patient P., 23 years old, diagnosed 20 weeks of pregnancy , subcutaneous abscess under the right buttock abscesses . What treatment to assign a patient ? How to anesthetize the patient ?

14. After the accident, the driver legkovushki unconscious, very pale. After 40 minutes the ambulance signs of bone fractures did not have . Pineal hematoma on the forehead . BP 80/50 mm Hg , pulse 144 beats / min. The abdomen was soft , participates in the act of breathing. On palpation of ribs - crackling on the right mid-clavicular line. Respiratory rate 27 for 1 minute. What a terrible complication can develop in a patient? How profilaktirovat it?

15. In the surgery taken from the victim's wound Rosanna lower third of the right arm of the size 3x0 , 5 cm, which he received during a scuffle in the street ( after the injury took 18 hours) . What kind of help should be given to the patient in the hospital ? Which method you offer a local anesthetic for pain relief ?

Tests III level of complexity

1. For fracture reduction of the radius in the bottom third can be used ?

1. infiltration anesthesia

- 2 . futlyarnuyu blockade
- 3 . anesthesia lubrication
- 4 . administration of 2 % procaine in the fracture hematoma
- 5 . epidural anesthesia
- 6 . blockade on the Kulen - Kampf

2 . What a complication occurs when the perirenal novocaine blockade?

- 1 . necrosis
- 2 . allergic reaction
- 3 . kidney injury
- 4 . regurgitation
- 5 . overdose
- 6 . ureteral injury

3 . What are the signs of poisoning anesthetics with local anesthesia ?

- 1 . dyspnea
- 2 . cerebrovascular accident
- 3 . bradycardia
- 4 . anuria
- 5 . dilated pupils
- 6 . dizziness

4 . Which of these methods of local anesthesia are ductor ?

- 1 . cryanesthesia
- 2 . anesthesia lubrication
- 3 . epidural anesthesia
- 4 . intra anesthesia
- 5 . spinal anesthesia
- 6 . intraosseous anesthesia

5 . What complication may occur during anesthesia Novocain ?

- 1 . overdose
- 2 . anaphylactic shock
- 3 . accidental administration to the artery
- 4 . urticaria
- 5 . accidental injection of the drug into a vein
- 6 . chemical irritation of the tissues - necrosis

6 . What are the solutions of novocaine can be used for perirenal blockade?

- 1 . 1%
- 2 . 5 %
- 3 . 10%
- 4 . 2%
- 5 . 0.25%
- 6 . 0.5%

7. What medications are used to treat poisoning anesthetics ?

1. antibiotics
- 2 . cardiac glycosides
- 3 . proteolytic enzymes ,antihistamines
- 4 . anticoagulants
- 5 . muscle relaxants

## 7. References:

General:

1. General Surgery. Textbook for students of higher medical educational establishments / [ Lihonenko O.V., Chorna I.O. , Zubaha A.B., Khimich S.D et all.]; Edited by Prof. S.D. Khimich, Prof. M.D. Zheliba Kyiv AUS Medicine Publishing, 2019.- 608 p.
2. General Surgery. Textbook for students of higher medical educational establishments / [ Lihonenko O.V., Chorna I.O. Khimich S.D et all.]; Edited by Prof. Ja.S.Bereznickij,M.P.Zacharash, M.P.Mishalov,. Vinnica: New book, 2019-344c
3. Methodological recommendations for classroom and independent work of students.
4. General Surgery / Ed. S.P.Zhuchenko, M.D.Zheliby, S.D.Himicha - Kiev.: Health, 1999.
5. Cherenko MP, JM Vavryk General surgery in anesthesiology, intensive care, and the basics of patient care - Kiev.: Health, 1999.
6. Gostishchev VK General Surgery: Textbook. - Moscow: Medicine, 1993
7. Gostishchev VK "Guide to practical training in general surgery." M., "Medicine" - 1987.

Additional:

1. AA Simodeyko, SS Philip A. Boldizhar General Surgery Questions and Answers. Uzhgorod, "Willow" - 2005.
2. SM Genyk, MV Prokopishin, VM Rat and others. Case Studies on hirurgii.Ivano-Frankivsk, "Lileya-NV" - 2003.
3. AA Simodeyko, SS Philip A. Boldizhar, V. Pant Practical skills in general surgery patient care. Uzhgorod, Uzhgorod National University. - 2001.
- Website akady <http://www.umsa.edu.ua>
- Website department of general surgery [http://www.umsa.edu.ua/kaf\\_zaghir](http://www.umsa.edu.ua/kaf_zaghir)
- Library UMSA <http://www.umsa.edu.ua/pidrozdilhome/biblioteka/biblhome.html>

## 8. The distribution points are awarded to students:

At mastering topic number 10 to content module 3 for training activities for students rated a 4-point scale (traditional) scale, which is then converted into points as follows:

rating	Points
5 (excellent)	5
4 (good)	4
3 (satisfactory)	3
2 (poor)	0

Guidelines prepared

Associate Professor, Department of General Surgery

Chorna I.O. \_\_\_\_\_