

ONMedU, Department of Obstetrics and Gynecology. Practical lesson № 23. Postpartum septic diseases.

**MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY**

International Faculty

Department of obstetrics and gynecology



CONFIRMED by
Vice-rector for scientific and
pedagogical work
Eduard BURIACHKIVSKYI
September 1, 2023

**METHODOLOGICAL RECOMMENDATIONS
FOR PRACTICAL CLASS**

International Faculty, Course V

Discipline "Obstetrics and Gynecology"

Practical lesson №23. Topic: Postpartum septic diseases.

ONMedU, Department of Obstetrics and Gynecology. Practical lesson № 23. Postpartum septic diseases.

Approved:

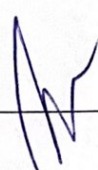
Meeting of the Department of Obstetrics and Gynecology of Odesa National Medical University

Protocol No. 1 dated August 28, 2023.

Head of the Department  (Ihor GLADCHUK)

Developer:

Ph.D., assistant professor of

obstetrics and gynecology department  (O. Zhovtenko)

Methodological recommendations for practical lesson. «Health care», master's degree in the specialty "Medicine". Discipline "Obstetrics and Gynecology"

Practical class №23.

POSTPARTUM SEPTIC DISEASES

LEARNING OBJECTIVE is to gain basic knowledge about physiological changes and signs of pathologic course in postpartum period, physiology of lactation and breastfeeding, primary care of newborn in order to make recommendations for management of puerperium and neonatal period and advice woman on discharge, peculiarities of management puerperal period, risk factors and methods of prevention and treatment of postpartum infection diseases.

BASIC CONCEPTS: Physiology changes of genital organs and mammary glands during postpartum period. Signs of infection and inflammation. Conditions and risk factors of development and spreading infections. Subinvolution of uterus. Lactostasis. Lactation mastitis. Methods of diagnosis and treatment septic diseases. Thrombophlebitis of deep veins . Metroendometritis. Pelvioperitonitis. Sepsis and septic shock.

EQUIPMENT

- Multimedia equipment (computer, projector, screen), TV.
- Obstetric models and obstetric instruments (pelvimeter, obstetric stethoscope, centimeter tape).
- Professional algorithms, structural-logical schemes, tables, videos.
- Results of laboratory and instrumental researches, situational tasks, patients, medical histories.

EDUCATIONAL TIME – 4 h

• **ORGANIZATIONAL STAGE**

- Greetings,
- checking attendees,
- defining of educational goals,
- providing of positive motivation.

By convention the puerperium (postpartum period) lasts for 6 weeks from the day of the birth of the child. During this time the physiological and morphological changes that occurred during pregnancy revert to the non-pregnant state. It is also a time when the woman takes on the responsibility of caring for a dependent, demanding infant. This may cause problems, particularly if she finds it difficult to adjust to being a mother.

One of the important causes of lethality in obstetrics and gynecology is common forms of postpartum infection. Timely diagnosis and scientifically sound treatment belongs to the most important problems of obstetrics and gynecology. About 80% of the lethal consequences of common forms of postpartum infection in obstetric and gynecological hospitals are caused by late diagnosis, late surgery, incomplete surgical care and intensive care.

This topic requires thorough study both to prevent complications of pregnancy, childbirth and postpartum stage, and for therapeutic measures.

- **CONTROL OF BASIC KNOWLEDGE** (written work, written testing, online testing, face-to-face interview, etc.)

2.1. Requirements for the theoretical readiness of students to perform practical classes.

Knowledge requirements:

- to collect data on patient complaints, medical history, life history;
- to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- to select the leading clinical symptom or syndrome;
- to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- to determine the principles of treatment of diseases, the necessary mode of work and rest, the nature of nutrition;
- to diagnose emergencies;
- to determine tactics and provide emergency medical care;
- to perform general examination, assess the health status of the puerperal woman,
 - to assess uterine involution, character of lochia, lab tests,
 - to counsel the women about physiological changes in postpartum period,
 - to assess complaints of puerperal woman, explain the origins of minor ailments in postpartum period, give advice how to reduce the problem,
 - to develop a plan of management of normal postpartum period,
 - to understand the common disorders of the puerperium and how to manage them
- to be able to recognize and manage common postpartum psychiatric disorders,
 - to counsel woman about physiology of lactation, benefits of breastfeeding,

- to check up woman on discharge, give judicious advice regarding diet, drugs and hygiene,
- to evaluate clinical signs of postpartum infection.
- to evaluate the indications for surgery.
- to write prescriptions for the treatment of the patient.

List of didactic units:

- Retrogressive changes in reproductive system and general physiological changes in female body.
- Course and management of the postpartum period.
- Physiology of lactation. Breastfeeding.
- Postpartum contraception: the method of lactation amenorrhea (MLA).
- Physical features of the newborn.
- Newborn care.
- Advantages of cohabitation of mother and child
- Involution of uterus and other pelvic structures, general physiological changes in female body in puerperium,
- Principles of prevention of purulent – septic complications in obstetric hospital.
- Risk factors for developing septic – infectious complications in the mother and newborn.
- Classification of postpartum complications.
- A modern look at the development of systemic inflammatory response syndrome.
- The volume of conservative treatment and surgery in case of postpartum infectious complications in relation to various clinical forms.
- Indications and principles of intensive care.

2.2. Questions (test tasks, tasks, clinical situations) to test basic knowledge on the topic of the class.

Questions:

- Definition of postpartum infection
- Definition of «internally hospital (hospital) infection»
- Classification of postpartum infectious diseases
- Etiology of postpartum infectious diseases
- Pathogenesis of postpartum infectious diseases
- The risk factors of postpartum infectious diseases
- Clinical features and diagnosis of postpartum infected wounds
- The treatments for postpartum infected wounds
- Clinical features and diagnosis of postpartum endometritis
- Treatments for postpartum endometritis
- Clinical features and diagnosis and treatment of milk fever
- Treatments for milk fever
- The modern classification of septic states
- Basic principles of treatment of obstetric sepsis
- Clinical features and diagnosis of obstetrical peritonitis
- Basic principles of treatment of obstetrical peritonitis
- Clinical forms of infectious thrombosis complications in obstetrics
- Basic principles of treatment of obstetric thrombosis complications

Test tasks

1. A woman consulted a doctor on the 14th day after labour about sudden pain, redness and induration of the left mammary gland, body temperature rise up to 39°C, headache, indisposition. Objectively: fissure of nipple, enlargement of the left mammary gland, pain on palpation. What pathology would you think about in this case?

+A. Lactational mastitis

B. Lacteal cyst with suppuration

- C. Fibrous adenoma of the left mammary gland
- D. Breast cancer
- E. Phlegmon of mammary gland

2. On the tenth day after discharge from the maternity house a 2-year-old patient consulted a doctor about body temperature rise up to 39°C, pain in the right breast. Objectively: the mammary gland is enlarged, there is a red area in the upper external quadrant, in the same place there is an ill-defined induration, lactostasis, fluctuation is absent. Lymph nodes of the right axillary region are enlarged and painful. What is the most likely diagnosis?

- +A. Lactational mastitis
- B. Abscess
- C. Erysipelas
- D. Dermatitis
- E. Tumor

3. Examination of placenta revealed a defect. An obstetrician performed manual investigation of uterine cavity, uterine massage. Prophylaxis of endometritis in the postpartum period should involve following actions:

- +A. Antibacterial therapy
- B. Instrumental revision of uterine cavity
- C. Haemostatic therapy
- D. Contracting agents
- E. Intrauterine instillation of dioxine

4. On the 10th day after childbirth a postpartum woman complains of pain and heaviness in the left mammary gland. Body temperature is 38, 8°C, Ps- 94 bpm. The left mammary gland is edematic, the upper-external quadrant of skin is hyperemic. Fluctuation symptom is absent. The nipples discharge drops of milk when pressed. What is a doctor's further tactics?

- +A. Antibiotic therapy, immobilization and expression of breast milk
- B. Compress to both mammary glands
- C. Inhibition of lactation
- D. Physiotherapy
- E. Opening of the abscess and drainage of the mammary gland

5. A parturient woman is 27 y.o., it was her second labour, delivery was at full-term, normal course. On the 3rd day of postpartum period body temperature is 36,8 °C, heart rate - 72/min, BP - 120/80 mm Hg. Mammary glands are moderately swollen, nipples are clean. Abdomen is soft and painless. Fundus of uterus is 3

fingers below the umbilicus. Lochia are bloody, moderate. What is the most probable diagnosis?

- +A. Physiological course of postpartum period
- B. Subinvolution of uterus
- C. Postpartum metroendometritis
- D. Remnants of placental tissue after labour
- E. Lactostasis

6. Examination of placenta revealed a defect. An obstetrician performed manual investigation of uterine cavity, uterine massage. Prophylaxis of endometritis in the postpartum period should involve the following actions:

- +A. Antibacterial therapy
- B. Instrumental revision of uterine cavity
- C. Haemostatic therapy
- D. Contracting agents
- E. Intrauterine instillation of dioxine

7. A woman addressed a gynecologist on the 20th day of puerperal period with complaints of pain in the left mammary gland, purulent discharge from the nipple. Objectively: Ps- 120/min., body temperature is 39°C. The left mammary gland is painful, larger than the right one, the skin there is hyperemic; in the upper quadrant there is an infiltrate 10x15 cm in size with soft center. Blood test: ESR- 50 mm/hour, leukocytes - 15, 0 · 10⁹/l. What would be the treatment tactics?

- +A. Transfer to a surgical department for surgical treatment
- B. Refer to a gynecology department
- C. Refer to a postnatal department
- D. Refer to a surgeon for conservative treatment
- E. Lance the mammary gland abscess in a maternity department

8. A maternity patient breastfeeding for 1,5 weeks has attended a doctor. She considers the onset of her disease to be when proportional breast engorgement occurred. Mammary glands are painful. Body temperature is 36, 6°C. Expression of breastmilk is hindered. The most likely diagnosis is:

- +A. Lactostasis
- B. Infiltrative mastitis
- C. Suppurative mastitis
- D. Chronic cystic mastitis
- E. Gangrenous mastitis

- **FORMATION OF PROFESSIONAL SKILLS (mastering skills, conducting curation, determining the treatment regimen, conducting a laboratory study, etc.).**

3.1. Content of tasks (tasks, clinical situations, etc.).

Interactive task:

Students of the group are divided into 3 subgroups of 3-4 people each. They work in the classroom, reception department of the maternity hospital, labor & delivery ward, neonatal department with pregnant and newborns.

Tasks:

- Subgroup I – to estimate lab and clinical results of patient and put primary diagnose.
- Subgroup II - to make a plan of management and treatment.
- Subgroup III – to assess answers of subgroups I and II and makes adjustments

Situational tasks

1. Maternity 5 days ago, due to fetal distress, a cesarean section was performed. In the postoperative period from the first day - a steady rise in temperature to 39.0 ° C against the background of taking three antibiotics. On the 4th day, the volume of the left leg increased.

Question: Indicate the most probable postpartum complication.

Correct answer: thrombophlebitis of the tibial veins

2. In the woman in labor on the 10th day of the postpartum period there were complaints of throbbing pain in the left breast. Body temperature 38.30C, pulse 98 beats / min, chills. The left mammary gland is tense, in the upper lateral quadrant it is palpated seal 3x4.5 cm with pronounced fluctuations. The uterus is dense, painless. Discharge from the genital tract is serous, scanty.

Question: What are the tactics of managing the patient?

Correct answer: Dissection and drainage of breast abscess, antibiotic therapy.

3. The woman in labor was transferred to the observation department on the 5th day of the postpartum period. An episiotomy was performed during childbirth. Complaints of malaise, pain in the perineum. The edges of the episiotomy wound are covered with purulent plaque, hyperemic. Body temperature 37.20C, pulse 88 beats / min. The mammary glands are soft. The uterus is dense, the bottom is 6 cm above the womb. Lochia serous-bloody, moderate.

Question: What are the tactics of managing the patient?

Correct answer: removal of sutures, wound treatment, imposition of secondary sutures after cleaning the wound.

3.2. Educational materials, recommendations (instructions) for performing tasks

Post-natal infection directly related to pregnancy and families, developing a period of 2-3 days, after delivery to the end of 6 th week and due to infection (mostly bacterial).

Some concepts and terms of postnatal infection.

Nosocomial infection (hospital) - any clinically expressed infectious disease that emerged in the patient during his stay in obstetrical hospital or within 7 days after discharge from it as well as medical personnel, which occur as a result of his work in the obstetrical hospital.

Most bacterial nosocomial infections occur within 48 hours after admission (birth). However, every case of infection should be assessed individually depending on the incubation period of these forms of infection.

Infection is not considered internally hospital if:

- presence of infection in patients in the incubation period for admission to hospital;
- extension of infection or complications that occurred in patients at the time of hospitalization.

Infection is internally hospital if:

- acquiring it in hospital;
- intra-natal infection.

Profiles of antibiotic-resistance determinants of a combination of each selected strain of microorganism. Antibiotic resistance profiles characterize the biologic features of the microbial ecosystem that has formed in the hospital. Permanent tracking the emergence and circulation in a separate hospital strains conditionally pathogenic microorganisms (UPM) with the same antibiotic resistance profiles is essential for detecting hospital strains of UPM and studying the epidemiology of hospital infections.

Classification

We have been used for many years classification by S.V.Sazonova-AV Bartels, under which various forms of post-natal infections are considered as separate stages of the dynamic of infectious (septic) process, and are divided into limited and extensive. This classification does not correspond to modern understanding of the pathogenesis of sepsis. Significantly changed the interpretation of the term "fever" in connection with the introduction of a new concept -"systemic inflammatory response syndrome."

Modern classification of postpartum purulent-inflammatory diseases suggests their distribution to the limited and conditional Generalized forms. To include limited conditional postnatal wounds fester, endometritis, mastitis. Generalized form presented peritonitis, sepsis, septic shock. The presence of systemic inflammatory

response in childbirth with relatively limited form of the disease requires intensive monitoring and treatment as in sepsis (sepsis classification see below).

Postnatal infection most likely occurs when body temperature increase of more than 38C through the uterus and painful within 48-72 hours after birth. In the first 24 hours after birth is often observed in normal fever. Approximately 80% of women with fever during the first 24 hours after birth through natural family ways no signs of infection.

In the international classification of disease X view (ICD-10, 1995) also distinguish the following natal infectious diseases section of postpartum sepsis:

085 Postpartum sepsis

Postpartum (a)

- Endometrium;
- Fever;
- Peritonitis;
- Septicemia.

086.0 Infection of obstetric surgical wound

Injected (s)

- Wound after cesarean section delivery
- Crotch seam

086.1 Other infection of genital tract after childbirth
cervicitis after birth

vaginitis

087.0 superficial thrombophlebitis in the postpartum period

087.1. Deep phlebothrombosis in the postpartum period

Deep vein thrombosis in the postpartum period

Pelvic thrombophlebitis in the postpartum period.

Etiology

Leading cause of obstetric complications are septic association gram and gram-negative anaerobic and aerobic microbes, while the predominant opportunistic flora. In the last decade as a role of these associations are playing infection, sexually transmitted diseases, a new generation: chlamydia, mycoplasma, viruses, etc..

Condition normal microflora of female sex organs play an important role in the development of septic diseases. Found high correlation between bacterial vaginosis (vaginal bacteria overgrowth) in pregnant women and infection of amniotic fluid, pregnancy complications (chorionamnionitis, preterm labor, premature rupture of membranes, postpartum endometritis, fetal inflammatory complications).

Despite the large variety of pathogens in most cases, postpartum infection revealed the following:

- Gram-positive bacteria (25%). Staphylococcus aureus - 35%, Enterococcus spp. - 20%, Coagulase-negative staphylococcus - 15%, Streptococcus pneumoniae - 10%, and other Gram-positive - 20%.
- Gram-negative bacteria (25%). Escherichia coli - 25%, Klebsiella / Citrobacter - 20%, Pseudomonas aeruginosa - 15%, Enterobacter spp. - 10%, Proteus spp. - 5%, and others - 25%.
- fungi of the genus Candida - 3%
- anaerobic flora - with special research methods 20%
- unidentified flora - in 25% cases.

Pathogenesis

Inflammation - a normal response of the organism to infection and may be defined as a localized protective response to tissue damage, the main problem is the destruction of microorganisms and pathogen-damaged tissues. But in some cases the organism responsible for infection over the massive inflammatory reaction.

Systemic inflammatory response - a systemic inflammatory response activation secondary to functional failure mechanisms limiting the spread of microorganisms, products of their life from the local area damage.

Currently, proposed to use such terms as a systemic inflammatory response syndrome (SIRS), and treat it as a universal immune system response to the impact of strong stimuli, including infection. When infection such stimuli are toxins (exotoxins and endotoxins) and enzymes (hyaluronidase, proteinase, fibrinolysin, collagenolytic) produced by pathogenic microorganisms. One of the most powerful factors starting a cascade of reactions SIRS LPS membrane of Gram-negative bacteria.

The basis of SIRS is the formation of excessively large number of biologically active substances - cytokines (IL1 and IL 6, tumor necrosis factor TNF α , leukotrienes, γ -interferon, endothelin, platelet-activating factor, nitric oxide, kinins, histamine, thromboxane A₂, etc.). that have pathogenic effects on endothelium (disrupts coagulation, microcirculation), increase vascular permeability, leading to tissue ischemia.

Outlines three stages of SIRS (Bone RS, in 1996):

1-stage - local cytokines production - in response to inflammatory mediators influence infection a protective role, and destroy the microbes involved in the process of healing wounds.

2-nd stage - a small number of cytokines release in systemic circulation - is controlled by the pro-and anti-inflammatory mediator systems, antibodies to create conditions for destruction of microorganisms, wound healing and maintain homeostasis.

Third stage - a generalized inflammatory response - the cascade of inflammatory mediators in blood increased as much as possible, the destructive elements of their starting to dominate, leading to endothelial dysfunction with all the consequences. Generalized inflammatory reaction (systemic inflammatory response syndrome) is likely to manifest infection is defined as sepsis. Classification of sepsis in the relevant section.

Risk Factors

Possible sources of postnatal infection (risk factors) that may exist before pregnancy detected:

- 1) upper respiratory tract infection - particularly if the use of general anesthesia;
- 2) epidural infection environments;
- 3) thrombophlebitis: lower extremities, pelvis, for vein catheterization;
- 4) urinary infection (asymptomatic bacteriuria, cystitis, pyelonephritis);
- 5) bacterial endocarditis;
- 6) appendicitis and other surgical infections.

By enabling factors of postpartum infectious complications include:

1. Cesarean section. The presence of suture material and the presence of ischemic necrosis of infected tissue, along with cuts on the uterus provide ideal conditions for septic complications.
2. Prolonged labor and premature rupture of amniotic membranes, leading to chorionamnionitis.
3. Traumatization of vaginal tissues during labor: the imposition of pliers, cut the crotch, repeated investigations vagina during childbirth, intrauterine manipulation (manual removal of placenta, manual examination of uterus cavity, internal rotation of fetal internal monitoring of the fetal uterus and cuts, etc.).
4. Reproductive tract infections.
5. Low social level, combined with poor nutrition and poor hygiene.

The causes generalized infection may include:

- incorrect surgical volume and inadequate surgery;
- wrong choice of volume and components antibacterial, detoxification and symptomatic therapy;
- reduced or altered immune reaction of macro organism;
- presence of severe concomitant diseases;
- presence of antibiotic-resistant strains of bacteria;
- lack of any treatment.

The clinic, diagnosis and treatment of relatively limited postpartum infections

Natal infection - primarily wound. In most cases the primary center is localized in the uterus, where the playground area of placental separation after the placenta is a large wound surface. Possible infection breaks perineum, vagina, cervix. After

caesarian section infection may develop in operating the anterior abdominal wall wound. Toxins and enzymes produced by microorganisms that cause wound infection, can enter the vascular bed at any location of primary fire.

Thus, any conditionally limited, localized protective response natal infection may cause the development of sepsis.

The common clinical signs of inflammatory reaction to:

- local inflammatory reaction: headache, flushing, swelling, local rise in temperature, dysfunction of the affected organ;
- total body response: hyperthermia, fever. Intoxication symptoms (malaise, tachycardia, lower blood pressure (BP), tachypnoe) showed SIRS development.

When the diagnosis data included:

- clinical: a review of the damaged surface, evaluation of clinical signs, complaints, anamnesis,
- laboratory: total blood, total urine analysis, bacteriological study fluid, immunogram;
- tool: ultrasound.

Ambulatory diagnosis and treatment of infected wounds post-natal

Clinical signs of infection in wounds that are healing by first intention:

a) complaints

- of intense, often pulsating pain in the wound area;
- to increase body temperature – up to 38-39 C.

b) the changes:

- hyperemia around the wound without positive dynamics;
- the emergence of tissue edema, which gradually increases;
- palpation determined by infiltration of tissue, often increases the possible occurrence of deeply located infiltrates;
- serous fluid quickly turns into pus.

Clinical signs of infection in wounds are healing secondary tension:

- progressive edema and infiltration of the tissues around the wound;
- painful emergence of dense infiltrates without clear contours;
- Signs of lymphadenitis;
- wound surface covered with solid pureulent bloom;
- slow or halt epithelial;
- granulation becomes pale or cyanotic, their bleeding decreases dramatically;
- increasing the number of fluid, it depends on the nature of the pathogen:

staphylococcus causes the appearance of thick yellowish pus, and some strains cause the development of putrid infection with the formation of local foci of tissue necrosis and pus muddily gray with a sharp odor;

for streptococcus characterized by the appearance of liquid manure yellow-green ichor;

enterococcus and Colibacillicus infection and cause the emergence of dung brown color with a characteristic smell;

Pseudomonas aeruginosa leads to the emergence of green manure with a specific smell.

View agent also determines the clinical course of wound infection:

- for an infection of staphylococcus fulminant local development process with stronger of purulent fever;
- streptococcal infection tends to spread as diffuse phlegmon, with weakly pronounced local features;
- sticks to *Pseudomonas aeruginosa* typical indolent, protracted course of the local process, after the sharp early, with pronounced manifestation of intoxication.

Fluid bacteriological research conducted to determine the pathogen and its sensitivity to antibiotics. Induction material should be performed before antibiotic therapy. Material for research may be fluid, tissue slices, washed with wounds. Material collected sterile instruments and placed in sterile test tubes or bottles with standard medium. Planting material should be made within 2 hours after the collection. Along with taking material for bacteriological study must make at least two smears stained by Gram, to approximate rapid diagnosis.

They can be used accelerated identification of the causative agent of wound infection by multimicrotest systems, methods of playing 4-6 hours.

In the absence of microbial growth in clinical material to exclude the following reasons:

- Availability of material sent in high concentrations of local or systemic antibacterial agents;
- violations of the storage and transport of samples;
- methodological errors in bacteriological lab;
- effective control of wound infection process of antibacterial drugs;
- presence of anaerobic infection.

Treatment

In most cases, a local treatment is sufficient. Treatment includes surgery, physiotherapy and pharmacological methods.

Debridement of wound

Primary treatment of wounds performed on the original indications. Repeated primary debridement performed if the first surgery on those or other reasons was not a radical and necessitated reintervention before the development of infectious complications in the wound.

Debridement consists of:

- Removal of wound vitality of tissues that are substrate for primary necrosis;
- Removal of hematoma (especially deep-seated);
- stop the bleeding;

- restoration of damaged tissues.

Secondary processing is performed by secondary wound indications, usually in connection with purulent-inflammatory complications of wounds. Repeated secondary treatment of severe wounds in wound infection can be performed repeatedly. In most cases, secondary debridement includes:

Removing fire • inflammatory infectious alterations;

- broad disclosure pocket, Bay;
- the provision of a full drainage outflow of fluid;
- use of local antiseptics;

Pharmacological methods is antibacterial therapy .

Antibiotic prophylaxis is a systemic administration of antibacterial drugs prior to microbial contamination of wounds or postoperative wound infection, and signs in the presence of contamination, provided that the initial surgical treatment. Appointed by the antibiotic at risk of exposure of massive wounds perineum, vagina and laparotomy wounds during cesarean section.

Principles of antibiotic prophylaxis:

- by cesarean section without complications after the department conducted a child by a single intravenous dose of antibiotic in average on the basis of the identified hospital strains and their antibiotic resistance;
- in case of complications during surgery or signs of the inflammatory process the same drug can be used for antibiotics;
- continued introduction of antibiotics after 24 hours from the end of the operation does not lead to more effective prevention of wound infections;
- prophylactic antibiotics early appointment for surgery is pointless, because it leads to violations gastrointestinal colonization and its upper parts.

Antibiotic therapy - the use of antibiotics for prolonged treatment in case of inflammatory process.

Antibiotics can be:

- Empirical - founded on the use of broad-spectrum drugs, active relation to potential pathogens;
- focused - used drugs according to the results of microbiological diagnosis.

It is important to use local antiseptics. To clean the wound can use 0.02% solution chlorhexidine and others.

Prevention of wound infection is a rational conduct of childbirth and postnatal period, subject to asepsis and antisepsis.

Ambulatory Diagnosis and treatment of **puerperal endometritis**

Postpartum endometritis (endometritis) - an inflammation of the superficial layer of the endometrium. Endomyometritis (endometriometritis or metroendometritis) - is spreading inflammation of the basal layer of endometrium to the myometrium.

Panmetritis - is spreading inflammation of the endometrium and myometrium to uterine serous layers.

Clinic

The initial stage of puerperal endometritis may be different expressiveness. Should distinguish between classical, erased and abortive forms of endometritis and endometritis after cesarean section. Classical forms endometritis usually develops 3-5 days after birth. For this specific form of fever, intoxication, mental change, expressed leukocytosis with left shift count, abnormal discharge from the uterus. When endometritis erased form of the disease usually develops in 8-9 days after birth, the subfebrile temperature, local manifestations had expressed. Abortive form of endometritis and runs as a classic, but a high level of immunological defense quickly stops. Endomyometritis after cesarean section may complicate pelvioperitonitis, peritonitis, which develops develop 1-2 days after surgery.

Diagnosis based on:

- Clinical data: complaints, anamnesis, clinical examination. When vaginal study dam moderately sensitive, subinvolution of uterus, purulent selection;
- laboratory data: total blood, total urine analysis, bacteriological and bacterioscopia of cervical secretions and / or uterus (blood and urine if necessary), immunogram, coagulogram, blood biochemistry;
- instrumental data: ultrasound (U.S.).

Treatment

In most cases, pharmacological treatment, but also possibly surgery.

Combined treatment of postpartum endometritis includes not only systemic antibacterial, infusion, detoxification therapy, but topical treatment. Empirical antibiotic therapy and can be focused (see above). Preference is given to a focused antibiotic therapy, possibly using the accelerated identification of the causative agent. If the fever lasts for 48-72 hours after treatment, it is suspected pathogen resistance to antibiotics used. Intravenous antibiotic treatment should last for 48 hours after the disappearance of hyperthermia and other symptoms. Tablets should prescribe antibiotics even for the next 5 days.

Necessary to consider that antibiotics fall in milk. Immature enzyme systems of babies cannot handle the full withdrawal of antibiotics, which can lead to a cumulative effect. The degree of diffusion of antibiotics to breast milk depends on the nature of antibiotic. In a limited number transferred to breast milk penicilin, cephalosporin, a large number - aminoglycosides, Tetracycline, macrolides. Therefore at their destination stop breast-feeding a baby.

Local therapy in endometrial wash-flow is drainage of uterine cavity, using the catheter through which make the uterine wall irrigation solutions antiseptics, antibiotics. Use chlorhexidine 0.02% solution. Contraindications to aspiration-drainage of uterine flushing are: failure of seams in the uterus after caesarian

section, infection has spread beyond the uterus, and the first days (up to 3-4 days) postnatal period. When pathological inclusion (rolls of blood remnants of membranes) of uterine cavity by flushing the drainage cannot wash, they must remove the vacuum aspiration, or careful curettage of the background of antibacterial therapy and normal body temperature. In the absence of these condition curettage is performed only for the life conditions (bleeding in the presence of remnants of the placenta).

Resort to surgical treatment of the case ineffectiveness of conservative therapy and the presence negative dynamics in the first 24-48 hours of treatment of systemic inflammatory response syndrome (SIRS). Surgical treatment is laparotomy with hysterectomy and uterine tubes.

Correct treatment of postpartum endomyometritis based prevention common form of infection in mothers.

Lactational mastitis

Lactational mastitis - an inflammation of the breast (mostly unilateral) during lactation in the postpartum period. Often developing 2-3 weeks after birth.

Etiology and pathogenesis

Most aetium is cracked nipples, penetration pathogen infection through breast milk ducts during lactation, rarely parasite spreads from endogenous foci.

Risk factors:

- cracked nipples;
- lactostasis.

Cracks can be at nipples malformation soother, when the child later application to the chest, poor feeding technique rough milk of individual epithelial cover soother, violating sanitary-epidemiological norms postpartum period.

When lactostasis may increase body temperature up to 24 hours if more than 24 hours - then this state should be viewed as mastitis.

Classification

I. The nature of the flow of breast inflammatory process can be:

- serous;
- infiltrative;
- purulent;
- infiltrative-purulent, diffusion, nodular;
- abscess (abscessed),: furunculosis areola, areola abscess, abscess in
- thicker gland abscess behind the gland;
- abscess, purulent necrotic;
- gangrenous.

II. For localization of foci mastitis can be:

- subcutaneous, subareolar, intramammary, retromammary and total.

The clinical manifestations

The clinical picture is characterized by mastitis: acute beginning, pronounced intoxication (malaise, headache), fever up to 38-39 C, chills, pain in the breast that increase with feeding. Mammary gland increases in volume, characterized by hyperemia and infiltration of tissues without clear boundaries. This painting is typical of serous mastitis. While inefficient treatment within 1-3 days serous mastitis goes into infiltrative. When palpation determined dense, sharply painful infiltration, glandular. Duration of this phase of 5-8 days. If infiltration does not resolve on the background of the treatment is its maturation - breast abscess (abscessed). Despite the strengthening of local symptoms of inflammation, a significant increase in breast cancer and deformity if infiltrate is shallow, then fester determined fluctuation. Maturation infiltration occurs within 48-72 hours. In cases where in the breast infiltrates, called breast abscess. Body temperature during this 39-40 C, chills, expressed weakness, intoxication. Mammary gland increased sharply, painful, well expressed by superficial venous network infiltrate occupies almost the entire gland, the skin over the affected area of swollen, shiny, red with cyanotic tinge. When gathered breast possible generalization of infection with the transition in sepsis.

Diagnostics

Diagnosis is based on the following data:

- clinical: a review of breast cancer (see text), evaluation of clinical signs, complaints, history taking;
- laboratory: total blood, total urine analysis, bacteriological research and bacterioscopia of fluid, immune gramma, coagulogram and blood biochemistry;
- tool: ultrasound (ultrasonography) - is an important diagnostic mastitis.

Treatment

Treatment could be conservative and surgical.

Antibiotic therapy should start with the first signs of disease to help prevent the development of purulent inflammation. When serous mastitis on breastfeeding solved individually. Please note: Opinion childbirth, anamnesis (purulent mastitis record, numerous scars of breast cancer, breast prosthesis), conducted by antibiotics, bacteriological data and research bacterioscopic fluid, the presence and expressiveness of crack nipples. Since infiltration mastitis child feeding is contraindicated because of a real threat to the child's infection and cumulative accumulation of antibiotics in the body of a child, but breastfeeding can be maintained by pumping. In the absence of the effect of conservative therapy of mastitis for 2-3 days and signs of purulent mastitis shown surgical treatment. Surgical treatment is radical cuts and adequate drainage. Parallel continuing antibiotics, detoxification and desensitizing therapy. Timely surgical treatment can prevent progression of the process, the development of SIRS.

Prevention

Prevention of puerperal mastitis is teaching women breast-feeding policies and compliance with rules of personal hygiene. Need early detection and treatment of cracks and lactostasis nipples.

Ambulatory diagnosis and treatment of generalized infection after delivery

From the standpoint of modern ideas of sepsis - a typical pathological process that complicates the course of various diseases of infectious nature, the basic content of which is the uncontrolled release of endogenous mediators with subsequent development of generalized inflammation and organ-system injuries remote from the primary focus.

Sepsis cannot be considered the result of direct action on the microorganism macro organism, it is the result of significant violations in the immune system that are in its development stages of activation of redundant, to a state of immunodeficiency. Immune system is an active member of autodestruction process. Very often this septicemia (presence of microbes in the blood) is absent.

Such concepts have defined modern terminology sepsis.

American Association of Anesthesiologists, in 1992 proposed the following classification of septic states recognized by most scientists.

Systemic inflammatory response syndrome (Systemic Inflammatory Response Syndrom - SIRS), manifested by two or more signs:

- 1) body temperature of more than 38.0 or lower 36.0;
- 2) HR over 90 beats / min;
- 3) respiration rate 20 per minute or PaCO₂ below 32 mm Hg. century;
- 4) WBC count more 12x10⁹ / l or less 4x10⁹ / l immature forms more than 10%.

Sepsis - systemic response to infection reliably detected in the absence of other possible reasons for such changes characteristic of SIRS. Manifested the same clinical signs and SIRS.

Sever sepsis - sepsis is characterized by the dysfunction of organs, tissue hypoperfusion, arterial hypotension. Possible acidosis, oliguria, mental blankness.

With the development of severe sepsis align the following features:

- thrombocytopenia less than 100 thousand / L, which cannot be explained by other causes;
- increase procalcitonin 6.0 ng / ml (A);
- positive blood won the detection of circulating bacteria (A);
- a positive test for endotoxin (LPS-test) (B).

Septic shock (SIRS - shock) is defined as severe sepsis with arterial hypotension, which develops despite adequate infusion therapy. Diagnosis is established if the above clinical and laboratory parameters align:

- arterial hypotension (systolic blood pressure less than 90 mm rt.st or decrease more than 40 mmHg from the reference level);
- violation of consciousness;

- oliguria (diuresis <30 ml / h);
- Hypoxia (PaO₂ less than 75 mm Hg when breathing the ambient air);
- SpO₂ less than 90%;
- raise more lactate 1.6 mmol / l;
- petechial rash, skin necrosis.

Multiple organ failure syndrome - the presence of acute dysfunction of organs and systems.

Diagnostics

For the diagnosis of clinical forms of sepsis should conduct the following activities in parturients with any form of postnatal infection:

- 1) monitoring: blood pressure, heart rate, central venous pressure, blood leukocytes and formulas;
- 2) calculation of respiration rate, assessing the level of blood gases, SpO₂;
- 3) Control hourly diuresis;
- 4) measurement of rectal body temperature of at least four times a day for comparison of body temperature in axillar areas;
- 5) crops urine, blood, secretions from the cervical canal;
- 6) determination of the acid-alkaline balance of blood and tissues of oxygen saturation;
- 7) platelet counting and determination of fibrinogen and fibrin monomers;
- 8) ECG, abdominal ultrasound and X-ray studies of the chest cavity.

Basic principles of therapeutic measures

1. Hospitalization in intensive care.
2. Correction of hemodynamic disorders with infusion therapy and adequate support.

Assessing arterial pressure, pulse arterial pressure, CHP, CHSS, diuresis, determine the volume of infusion therapy. Determination of CHP in the dynamics allows controlled infusion of colloid solutions and crystalloid with the assessment amounts imposed and the lost fluid, blood.

For derivatives used infusions (Refortan, Venofundyn, volyuven, Stabisol) and crystalloid (0.9% sodium chloride solution, a Ringer solution) in the ratio 1:2. To correct hypoproteinemia appoint only 20-25% of albumin. Application of 5-10% albumin in critical states increases mortality of patients (A).

In the infusion must include quick-frozen plasma 600-1000 ml, due to the presence in it of anti thrombin (B).

Inappropriate use of glucose (B), because its purpose in patients in critical states increases lactate production and CO₂ increases ischemic brain damage and other tissues. Glucose infusion is used only in cases of hypoglycemia, and hypernatremia.

In case of failure of complex hemodynamic therapy using glucocorticosteroids possible (hydrocortisone - 2000 mg / day (P)) with H2-blockers (ranitydin, famotidin) (B).

3. Maintaining adequate ventilation and gas exchange. Indications for ventilation are: PaO₂ less than 60 mmHg, PaCO₂ 50 mmHg or less than 25 mmHg, SpO₂ less than 85%, respiratory rate 40 per minute.

4. Normalization of bowel function and early enteral nutrition.

5. Timely correction of metabolic laboratory under constant control.

6. The decisive factor is the rational choice of antimicrobial drugs, particularly antibiotics. Targeted antibacterial therapy is possible only after determining pathogen and establishing its sensitivity to antibiotics that may be in the best case 48 hours earlier. Waiting identify empirical antibiotics used, taking into account the nature of primary foci of infection function of liver, kidney, immune system sick.

7. Evaluation of pathophysiological and pathobiochemical disorders that can be allocated in the following syndromes: kidney, liver, different variations of cardiovascular and respiratory failure, ICE syndrome, disorders of microcirculation, dysfunction of gastrointestinal tract with bacterial flora translocation phenomena in lymphatic system and then and in systemic circulation with the development of multiple organ failure syndrome. Patho biochemical disorders manifest violations of water-electrolyte, acid-base balance and others. Each of the syndromes demanding approach, individual application of certain methods and tools that cover all sections of intensive care.

8. Improvement of microcirculation

In recent years literary sources provide information about Drotrecogine alfa - recombinant human activated protein C. This new drug only in patients with severe sepsis, multiple organ failure. Activated protein C - this endogenous protein that supports fibrinolise, inhibits thrombosis, and also has anti-inflammatory properties.

10. Surgical treatment of seizure foci of infection.

Indications for laparotomy and hysterectomy with uterine tubes are:

- lack of effect of intensive therapy (24 hours)
- endomyometritis that defies conservative treatment (24-48 hours);
- uterine bleeding;
- abscess formation in the field of oophorectomy;
- detection of ultrasound at the balance of the placenta.

11. Extracorporeal blood purification (detoxification) is a promising direction in the correction of homeostasis in severe cases. To this end, apply: hemodialysis, plasmapheresis.

Clinical diagnosis and treatment of obstetrical peritonitis

Peritonitis in obstetrical practice develops more often after cesarean section. Depending on the way to distinguish a peritoneal infection. Early peritonitis occurs at 1-3 days after surgery. It is usually caused by infection during an operation conducted against the backdrop chorioamnionitis.

Peritonitis associated with bowel paresis develops 3-5 days after surgery. It relates to breach the barrier function of intestinal obstruction due to its dynamic, with intestinal content by liquid and gas.

Peritonitis due to wounds of inferiority often develops in the uterus for 4-9 days after surgery. This distribution of clinical forms very conditional, but significantly affects the choice of treatment tactics

Clinical signs of peritonitis include hyperthermia, bloating and bowel paresis (absence of peristalsis), accumulation of liquid contents in the stomach, breathlessness, tachycardia, vomiting, intoxication, which is growing, peritoneal irritation. Therapeutic measures give a temporary effect, 3-4 hours again increases intestinal paresis and other signs of peritonitis.

Ultrasound signs of peritonitis: bloated, filled loops of bowel contents, the presence of free fluid in the abdominal cavity between the bowel loops in the lateral channels and space behind the uterus. About deficiency stitches in the uterus shows irregular uterine wall thickness in projection seam presence in this niche segment of "fluid" and "structures."

In the treatment of early peritonitis justified intensive conservative therapy for 8 - 12 days (see treatment of sepsis). Necessary to provide drainage from the uterus, stimulating bowel function. In the absence of the effect of conservative therapy within the specified time shown laparotomy with revision of the abdominal cavity, hysterectomy with uterine tubes. Over the past fifteen years have been offered new approaches and methods of surgical treatment of abdominal sepsis, particularly purulent peritonitis. These include: a closed method (passive and active drainage, peritoneal dialysis, re-laparotomy "on demand"(if shown)), Half (turning audit and restructuring "program" in readjustment period, the temporary closure of laparotomy wounds), open (laparostomy).

Clinical diagnosis and treatment of infectious thrombotic complications

The superficial thrombophlebitis. Acute thrombophlebitis revealed pain along the affected vein. Complaints to local heat sensation, redness and tenderness along the subcutaneous veins. Leaf palpation as dense painful cord hyperemia may extend beyond the sealing veins may occur infiltration of tissues that are near, lymphadenitis. Overall condition childbirth while broken sub febrile body temperature, accelerated pulse.

Deep vein thrombophlebitis. Complaints of pain on the side of lesion, swelling of affected limbs and skin discoloration. Objective manifestations corresponding compensation stage: fever (often the first and only sign of venous thrombosis), no

pronounced violation of venous hemodynamics. Objective signs that match the stage of decompensation: intense pain, which often changes its localization feeling heaviness and tension, captures the entire limb swelling, increasing regional lymph nodes, skin color varies from pale to cyanotic, dominated by diffuse cyanosis all limbs.

Diagnosis based on clinical data, laboratory tests:

- assessment of the degree risk of thromboembolism - definition D- dimer level in plasma (D-dimer-test);
- thromboelastogram, coagulogram;
- determine the number of fibrin-monomer in blood serum ;
- identifying and fibrin degradation products in plasma fibrinogen (FDP PLASMA)

Used instrumental methods of investigation: duplex ultrasound with color Doppler mapping, radionuclide tracer study of fibrinogen, opaque retrograde ileocavography.

Septic pelvic vein thrombophlebitis. When endomyometritis infectious agent goes into venous circulation, affects the endothelium of vessels and promotes clot formation, usually prevailing anaerobic infection. The process involved in ovarian veins can penetrate into the lower hollow renal vein. Complaints of abdominal pain at the bottom of irradiation in the back, groin, may be nausea, vomiting, bloating, fever. In the study of vaginal palpation thickening in a rope in the corners of the uterus. When septic thrombophlebitis may be the migration of small blood clots in the pulmonary circulation of.

Treatment

Treatment thrombotic complications in postpartum period along with antibiotics and detoxification must include:

a) bed rest with the deployment of lower extremity on the tire Bellera until disappearance of edema or express purpose of anticoagulant therapy;

- Local hypothermia thrombose projection along the vascular bundle;
- elastic compression using elastic bandages;
- correction character act defecation with laxative use;

b) medical therapy:

- anticoagulants in the acute stage of disease. Direct anticoagulants - heparin, low molecular weight heparin;
- indirect anticoagulants prescribed 2 days before the abolition of direct anticoagulants for up to 3-6 months;

c) local treatment, which is held from 1-day diseases:

- Local hypothermia;
- application of ointments on the basis of heparin -with heparin, Lioton 1000, or NSAIDs - Fastum-gel, diclofenac gel.

Prevention of postpartum infection

To prevent postpartum septic complications, the proper organization of prenatal (rehabilitation of chronic septic foci), the maternity unit of postpartum wards, strict adherence to the principles of aseptic and antiseptic during childbirth and care bears, the isolation of women with signs of septic infection.

Great importance to prevent injuries during childbirth, bleeding and decrease the rate of surgical interventions during childbirth. It is necessary to prevent premature amniotic fluid effusion, timely treat deviations from the physiological course of labor (weakness of delivery), antibiotic for indications.

- **Requirements for the results of work.**

- to take a medical history (general and specific) and record information in a standardized proforma,
- to perform general examination, assess the health status of the puerpera,
- to assess uterine involution, character of lochia, lab tests,
- to assess complaints of puerpera, explain the origins of minor ailments in postpartum period, give advice how to reduce the problem,
- to develop a plan of management of normal postpartum period,
- to understand the common disorders of the puerperium and how to manage them,
- to counsel woman about physiology of lactation, benefits of breastfeeding,
- to check up woman on discharge, give judicious advice regarding diet, drugs and hygiene,
- to evaluate clinical signs of postpartum infection,
- to evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of required clinical, laboratory and instrumental studies and evaluate their results;
- to select the leading clinical symptom or syndrome;
- to make a preliminary and a differential diagnosis and make the clinical diagnosis of the disease;
- to evaluate the indications for surgery.
- to write prescriptions for the treatment of the patient.

3.4. Control materials for the final stage of the class: tasks, tests, etc.

Tests:

1. On the 9th day after childbirth the obstetric patient developed high fever up to 38°C. She complains of pain in the right mammary gland. The examination revealed the following: a sharply painful infiltrate can be palpated in the right mammary gland, the skin over the infiltrate is red, subareolar area and nipple are swollen and painful. What is your diagnosis?

- +A. Abscess of the right mammary gland
- B. Mastopathy
- C. Cancer of the right mammary gland
- D. Serous mastitis
- E. Fibrous cystic degeneration of the right mammary gland

2. A woman complains of temperature increase up to 39 °C, sharp pains in her lower abdomen, and purulent discharge from her genital tracts. From her case history it is known that 6 days ago she underwent illegal abortion. Objectively her blood pressure is 100/60 mm Hg, pulse is 110/min. Abdominal rigidity, rebound tenderness (Bloomberg's sign), and painful palpation of the lower abdomen are observed. On bimanual examination the uterus is enlarged up to 7 weeks of pregnancy, painful, and soft; posterior vaginal fornix overhangs. Make the diagnosis:

- +A. Pelvioperitonitis
- B. Endometritis
- C. Acute adnexitis
- D. Pyosalpinx
- E. Metroendometritis

3. A postparturient woman, who has been breastfeeding for 3 weeks, made an appointment with the doctor. For the last 6 days she has been feeling unwell, complains of body temperature of 38-39°C, general weakness; within the last 2 days she developed pain and redness in the area of her right mammary gland. Examination revealed her mammary gland to be significantly enlarged and deformed; breast tissue fluctuations and lymphadenitis are observed. What type of mastitis is the most likely?

- +A. Phlegmonous mastitis
- B. Serous mastitis
- C. Infiltrative mastitis
- D. Lactostasis
- E. Mammary edema

4. A 22-year-old postparturient woman on the 12th day after the normal childbirth informs of elevated body temperature up to 39°C for the last 3 days and pain in her right mammary gland. The right mammary gland is enlarged, hot to touch, tense, hyperemic, and painful. Palpation reveals there a dense infiltration 8x8 cm with a fluctuation in its center. What is the most likely diagnosis?

- A. Postpartum period, day 12. Right-sided lactostasis

- +B. Postpartum period, day 12. Right-sided infiltrative-purulent mastitis
- C Postpartum period, day 12. Right-sided gangrenous mastitis
- D. Postpartum period, day 12. Right-sided phlegmonous mastitis
- E. Postpartum period, day 12. Right-sided serous mastitis

13. On the day 4 after the cesarean section a woman developed fever with body temperature up to 39°C and abdominal pain. Pulse - 104/min. She vomited twice. The patient is sluggish, her tongue is dry and has gray coating. The abdomen is distended. Signs of peritoneal irritation are positive in all segments. Peristalsis cannot be auscultated. No passage of gas occurs. Uterine fundus is located at the level of the navel. The uterus is painful on palpation. The discharge is moderate and contains blood and pus. What is the most likely diagnosis?

- +A. Diffuse peritonitis
- B. Pelvic peritonitis
- C Metroendometritis
- D. Progressive thrombophlebitis
- E. Parametritis

Questions:

1. What is the definition of postpartum infection?
2. What is the definition of «internally hospital (hospital) infection»?
3. What is the classification of postpartum infectious diseases?
4. What is the etiology of postpartum infectious diseases?
5. What is the pathogenesis of postpartum infectious diseases?
6. What are the risk factors of postpartum infectious diseases?
7. Which clinical features and diagnosis of postpartum infected wounds?
8. What are the treatments for postpartum infected wounds?
9. What are the clinical features and diagnosis of postpartum endometritis?
10. What are the treatments for postpartum endometritis?
11. What are the clinical features and diagnosis and treatment of milk fever?
12. What are the treatments for milk fever?
13. What is the modern classification of septic states?
14. What are the basic principles of treatment of obstetric sepsis?
15. What are the clinical features and diagnosis of obstetrical peritonitis?
16. What are the basic principles of treatment of obstetrical peritonitis?
17. What are the clinical forms of infectious thrombosis complications in obstetrics?
18. What are the basic principles of treatment of obstetric thrombosis complications?

Situational task:

1. The woman in labor on the 5th day of childbirth complained of pain in the left breast, fever up to 39°C. No pathology of the genitals was detected. The left breast is dense, painful on palpation.

Question: What are the doctor's tactics?

Correct answer: expressing milk

2. A 23-year-old woman was transferred to the observation department on the 5th day after delivery due to a rise in temperature to 38.8°C. Childbirth was complicated by a long dry period (19 hours). Objectively: body temperature 38.8°C, chills, pulse 100 beats / min. The abdomen is painful in the hypogastrium. The bottom of the uterus is 4 cm below the navel. At vaginal examination: the uterus is increased to 18 weeks of pregnancy, soft, painful. Discharge with an unpleasant odor.

Question: Which diagnosis is most likely?

Correct answer: postpartum endomyometritis

• SUMMING UP

Assessment of the ongoing learning activity at the practical class:

1. Assessment of the theoretical knowledge on the theme:

- methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;
- the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of practical skills on the theme:

- methods: assessment of the solution of situational tasks (including calculation) on the theme;
- the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual task:

1. Assessment of the quality of the performance of the individual task:

- the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

2. Assessment of the presentation and defense of an individual task, participation in the assessment of the business plan of the competitors and its critical analysis:

- the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria for ongoing assessment at the practical class:

“5”	The student is fluent in the material, takes an active part in the discussion and solution of situational clinical problems, confidently demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies, expresses his opinion on the topic, demonstrates clinical thinking.
“4”	The student is well versed in the material, participates in the discussion and solution of situational clinical problems, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, demonstrates clinical thinking.
“3”	The student isn't well versed in material, insecurely participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a pregnant and interpretation of clinical, laboratory and instrumental studies with significant errors.
“2”	The student isn't versed in material at all, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of a pregnant and the interpretation of clinical, laboratory and instrumental studies.

RECOMMENDED LITERATURE

Basic:

- Gladchuk I.Z. Obstetrics: student`s book / Gladchuk I.Z., Ancheva I.A. . – Vinnitsia: Nova Knyha, 2021. – 288 p.
- Obstetrics and Gynecology: in 2 volumes. Volume 1. Obstetrics: textbook / V.I. Gryshchenko, M.O. Shcherbina, B.M. Ventskiivskiyi et al. (2nd edition). – «Medicina», 2018. – 392 p.
- Hiralal Konar DC Dutta's Textbook of Obstetrics (9th Ed.) / Hiralal Konar (Ed.). – Jp Medical Ltd, 2018. – 700 p.
- F. Gary Cunningham Williams Obstetrics (26th Edition) / F. Gary Cunningham, Kenneth Leveno, Jodi Dashe, Barbara Hoffman, Catherine Spong, Brian Casey. – McGraw Hill / Medical, 2022. – 1328 p.
- Jeremy Oats, Suzanne Abraham Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th Ed) / Jeremy Oats, Suzanne Abraham. – Elsevier, 2016. – 384 p.

Additional:

- The PROMPT-CIPP Editorial Team. (2019). PROMPT-CIPP Course Participant's Handbook: Care of the Critically Ill Pregnant or Postpartum

Woman (Critical Care Prompt Practical Obstetric Multi-professional Training). – Cambridge University Press; 1st edition, 2019. – 136 p.

- L. A. Magee The FIGO Textbook of Pregnancy Hypertension. An evidence-based guide to monitoring, prevention and management. / L. A. Magee, P. Dadelszen, W. Stones, M. Mathai (Eds). – The Global Library of Women's Medicine, 2016. – 456 p.
- Edwin Chandraran Handbook of CTG Interpretation: From Patterns to Physiology / Edwin Chandraran. – Cambridge University Press; 1st edition, 2017. – 256 p.
- Louise C. Kenny, Jenny E. Myers Obstetrics by Ten Teachers (20th ed) / Louise C. Kenny, Jenny E. Myers. – CRC Press, 2017. – 342 p.
- J. Studd Current Progress in Obstetrics and Gynaecology. Vol 4. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2017. – 419 p.
- J. Studd Current Progress in Obstetrics and Gynaecology. Vol 5. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2019. – 403 p.
- J. Studd Current Progress in Obstetrics and Gynaecology. Vol 6. / J. Studd, Seang Lin Tan, F. Chervenak. – TreeLife Media (A Div of Kothari Medical), 2022. – 309 p.
- Mark Landon Obstetrics: Normal and Problem Pregnancies, 8th Edition / Mark Landon, Henry Galan, Eric Jauniaux, Deborah Driscoll, Vincenzo Berghella, William Grobman, et al. – Elsevier, 2021. – 1280 pp.
- Mark B. Landon Gabbe's Obstetrics Essentials: Normal & Problem Pregnancies, 1st Edition / Mark B. Landon, Deborah A. Driscoll, Eric R. M. Jauniaux, Henry L. Galan, William A. Grobman, Vincenzo Berghella. – Elsevier, 2019. – 496 pp.
- Ian M. Symonds, Sabaratnam Arulkumaran Essential Obstetrics and Gynaecology, 6th Edition / Ian M. Symonds, Sabaratnam Arulkumaran. – Elsevier, 2020. – 480 pp.
- Myra J. Wick Mayo Clinic Guide to a Healthy Pregnancy, 2nd Edition / Myra J. Wick. – Mayo Clinic Press, 2018. – 520 p.

Internet sources:

- <https://www.cochrane.org/>
- <https://www.ebcog.org/>
- <https://www.acog.org/>
- <https://www.uptodate.com>
- <https://online.lexi.com/>
- <https://www.ncbi.nlm.nih.gov/>

- <https://pubmed.ncbi.nlm.nih.gov/>
- <https://www.thelancet.com/>
- <https://www.rcog.org.uk/>
- <https://www.npwh.org/>