MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

Faculty of dentistry
Department of Obstetrics and Gynecology

"APPROVED"
Vice-rector for scientific and pedagogical work
Eduard BURIACHKIVSKYI
September 1, 2023

METHODICAL DEVELOPMENT OF THE PRACTICAL LESSON

Course IV. Faculty of dentistry

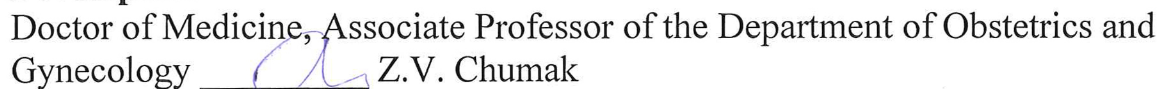
Educational discipline "Obstetrics and gynecology"

Practical lesson No. 3. Topic: " Early gestosis. Hypertensive disorders during pregnancy. Preeclampsia. Eclampsia."

Approved:
Meeting of the Department of Obstetrics and Gynecology
Odessa National Medical University

Protocol No. 1 dated "28" August 2023.

Head of the department______________________________ Ihor GLADCHUK

Developers:

Doctor of Medicine, Associate Professor of the Department of Obstetrics and Gynecology __________ Z.V. Chumak

PhD, Assistant of Professor of the Department of Obstetrics and Gynecology
__________ O.V. Zhovtenko

Practical lesson No. 3

Topic: "Early gestosis of pregnant women. Hypertensive disorders during pregnancy. Preeclampsia. Eclampsia".

Aim: To acquaint students with higher education with timely diagnosis, prognosis, prevention and treatment of pregnancy complications, which remain the main strategy in the system of measures aimed at protecting the health of the mother and child. The most alarming complications of pregnancy include preeclampsia. According to the Ministry of Health of Ukraine, during the last decade, preeclampsia is among the top three causes of maternal loss.

Basic concepts: Clinical classification of early gestosis, Classification of hypertensive disorders during pregnancy, preeclampsia and eclampsia. Etiology and pathogenesis. Modern diagnostic methods for early gestosis, preeclampsia, eclampsia Modern principles of prevention preeclampsia and eclampsia, medical rehabilitation patients. Emergency care. Medical rehabilitation patients.

Equipment: Professional algorithms, structural and logical schemes, tables, models, video materials, results of laboratory and instrumental studies, situational problems, patients, case histories.
EDUCATIONAL TIME – 4 h

1. 1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

A student of higher education should know and be able to define: the concept of "early and late gestosis", classification of early and late gestosis, modern views on the etiology and pathogenesis of early and late gestosis, diagnostic criteria of various forms of early gestosis, diagnostic criteria of various forms of late gestosis. To be able to provide timely help.

2. Control of the reference level of knowledge (written work, written test, online test, face-to-face surveys, etc.).
- Requirements for the theoretical readiness of students of higher education to perform practical classes.

Knowledge requirements:

- Ability to collect medical information about the patient and analyze clinical data.
- Ability to interpret the results of laboratory and instrumental achievements.
- Ability to diagnose: determine preliminary, clinical, final, accompanying diagnosis, emergency conditions.
- Ability to perform medical and dental manipulations.
- Ability to determine tactics, methods and provision of emergency medical assistance.
- Ability to provide pre-medical care according to the protocols of tactical medicine.

List of didactic units:

- Early gestosis: classification, clinic, diagnosis, treatment;
- Hypertensive disorders during pregnancy: definition, classification, treatment;
- Preeclampsia: pathogenesis, classification, diagnosis, clinic, treatment, tactics, prevention;
- Eclampsia: clinic, diagnosis, complications, emergency care, management tactics;-

Questions (tests, tasks, clinical situations) to check the basic level of knowledge on the subject of the lesson.

Questions:

1. What is the definition of "early gestosis"?
2. What is the classification of early gestosis?
3. What is the clinic for vomiting in pregnant women?
4. What examination methods are indicated for vomiting in pregnant women?
5. What is the differential diagnosis of various forms of early gestosis with extragenital diseases?
6. What is the modern terminology, the definition of "preeclampsia"?
7. What is the classification of preeclampsia?
8. What are the risk factors for preeclampsia?
9. What is the clinic for preeclampsia of varying degrees of severity?
10. What is the modern terminology of eclampsia?
11. What factors cause the development of this pathology of eclampsia?
12. What are the doctor's tactics when diagnosing eclampsia?

Situational tasks:

1. A primagravida was admitted to the gynecological hospital at a gestation period of 7-8 weeks with complaints of constant nausea, vomiting up to 15

times a day, lack of appetite, weight loss, temperature rise to 37.5°C. Objectively: icteric sclera and skin, hypotension, tachycardia up to 120 bpm, the smell of acetone from the mouth, diuresis is reduced, in blood tests - hyperbilirubinemia, in urine tests - acetonuria, cylindruria. The therapy carried out for 4 days did not improve the patient's condition. Make a preliminary diagnosis.

Answer: Pregnancy I, 7-8 weeks. Severe vomiting of pregnant women.

2. A 28-year-old primigravida admitted to hospital with regular contractions. Complaints of headache, impaired vision, retardation. Blood pressure - 180/110 mm Hg. Significant edema of the legs, front abdominal wall. The fetal heartbeat is clear, rhythmic, 160 bpm. On internal examination: the opening of the cervix is complete, the fetal bladder is absent. The head of the fetus in the cavity of the small pelvis. What is the management strategy of this patient?

Answer: Emergency care of severe preeclampsia, urgent delivery with the help of cavity obstetric forceps.

Typical test tasks:

1. A 35-year-old pregnant woman with a gestational age of 34-35 weeks complains of a headache. Blood pressure -160/100 mm Hg. Urine analysis is normal. There are no edema. She has been suffering from high blood pressure since she was 16 years old. Make a preliminary diagnosis.

A. Astheno-neurotic syndrome

B. Chronic hypertension

C. Gestational hypertension

D. Moderate preeclampsia

E. Severe preeclampsia

2. A pregnant woman at 37 weeks of geststion has generalized edema, blood pressure - 170/120 mm Hg, proteinuria - 4 g/l. Intrauterine growth restriction of the fetus was detected during ultrasound. What pathology causes such a clinical picture?

A. Astheno-neurotic syndrome

B. Chronic hypertension

C. Gestational hypertension

D. Moderate preeclampsia

E. Severe preeclampsia

3. A 28-year-old primiparous woman went into labor. Complaints of headache, visual disturbances. Blood pressure - 180\110 mm Hg, significant edema of the lower limbs, anterior abdominal wall. The fetal heartbeat is clear, rhythmic - 148 bpm. During the internal obstetric examination: the opening of the cervix is complete, the head of the fetus is on the pelvic floor. Choose the delivery tactics?

A. Conservative labor

B. Stimulation of labor activity

C. Obstetric forceps application operation

D. Cesarean section

E. Fetus-destructive operation

Correct answers:1-B; 2-E; 3-C;

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research).

- Task content (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 with pregnant and phantoms.

Tasks:

- Subgroup I - to perform measurement of pulse and blood pressure of pregnant, auscultation of the fetus; identification and assessment of edema assessment of the weight gain of a pregnant woman
- Subgroup II - to assess of laboratory parameters; make plan of treatment of early gestosis, treatment of preeclampsia , First aid for an attack of eclampsia.
- Subgroup III – to assess answers of subgroups I and II and makes adjustments.

Non-typical situational tasks

1. A first-time pregnant woman with a gestation period of 38-39 weeks came with complaints of weakness, drowsiness, headache, flickering "flies" in front of her eyes, periodic pains in the epigastric area, edema of her legs. Blood pressure -

170/115 mm Hg. The position of the fetus is longitudinal, the main presentation, the heartbeat of the fetus is 90-100 bpm, muffled. Protein in urine - 5.3 g/l.

Task:

1. Make a diagnosis.

2. What are the patient management tactics?

Answer:

1. Diagnosis: Pregnancy I, 38-39 weeks, longitudinal lie, head presentation. Severe preeclampsia. Fetal distress.

2. Emergency cesarean section.

2. A 28-year-old primipara was admitted to the maternity ward with labor, according to the data, the gestational age is 36-37 weeks, the lie of the fetus is longitudinal, the head presentation. Contractions last 45-50 seconds in 1.5-2 minutes, moderate. The woman complains of a headache. Blood pressure - 160 \ 105 mm Hg. Significant edema of the lower limbs. Protein in urine - 3.3 g/l. Fetal heartbeat up to 180-185 bpm. During the internal obstetric examination: the opening of the cervix is complete, the amniotic sac is absent. The head of the fetus is in the plane of exit from the pelvis.

Task:

1**.** Make a diagnosis.

2. What are the patient management tactics?

Answer:

1. Diagnosis: Gravida I, 36-37 weeks. Para I. Preeclampsia of moderate severity. Fetal distress.

2. Tactics of management - application of output obstetric forceps, treatment of late gestosis.

3. A 25-year-old nulliparous woman at 33 weeks' gestation comes to the labor and delivery ward complaining of contractions, a headache, and flashes of light in front of her eyes. Her pregnancy has been uncomplicated except for an episode of first trimester bleeding that completely resolved. She has no medical problems. Her t'37 C, BP 160/110 mm Hg, pulse 88/minute, and respirations 12/minute. Longitudinal lie with head presentation of the fetus. Examination: her cervix is 2 cm dilated and 75% effaced, and that she is contracting every 2 minutes. The fetal heart tracing is

in the 140s and reactive. Urinalysis shows +++ proteinuria. Laboratory values: leukocytes 9,400/mm3, hematocrit 35%, platelets 101,000/mm3. Aspartate aminotransferase (AST) is 200 U/L, and ALT 300 U/L.

Task:

1. Make a preliminary diagnosis?
2. What is the most appropriate next step in management?

Answer:

1. I pregnancy, 33 week of gestation term. Longitudinal lie with head presentation of the fetus. Moderate preeclampsia.
2. Hospitalization of a pregnant woman in a hospital. Primary laboratory examination: complete blood count, hematocrit, platelet count, coagulogram, ALT and AST, blood group and Rh factor (in the absence of accurate information), general urinalysis, determination of daily proteinuria, creatinine, urea, uric acid, plasma electrolytes (sodium and potassium), fetal health assessment. Nutrition: High-protein food, no salt and water restrictions, and non-thirsty foods. Intravenous injection of Magnesium sulfate 25% 10,0 +NaCl 0,9% 200,0. Dexamethasone 6 mg every 12 hours, four times over 2 days. Nifedipine 10 mg 2-3 times a day.

Non-typical test tasks:

1. At the gestational term 32 weeks of pregnancy, M. developed a severe headache, impaired vision, and pain in the epigastrium. She was not seen by a doctor. General edema of the body and face are present for 2 weeks. Blood pressure 190/100 mm Hg. Facial muscle twitching, convulsions appeared. Emergency services were called. Where to hospitalize a pregnant woman?

A. In the maternity hospital.
B. A. In the neurological department.
C. B. In the cardiology department.
D. C. In the nephrology department.
E. D. In the infectious department.

2. Gravida I, att term 37 weeks of pregnancy, complains of difficulty breathing through the nose, general swelling of the body during the week. Blood pressure 190/120 mm Hg. In the urine - protein 3 g/l. She refused hospitalization. Suddenly, she had twitching of the facial muscles, which

turned into tonic and clonic convulsions. She regained consciousness after 3 minutes. What is the diagnosis ?

A. Eclampsia.
B. Eclamptic coma.
C. Epileptic attack.
D. Severe preeclampsia.
E. Eclamptic status.

3. The therapist was called to a woman who was 37 weeks pregnant, who complained of headaches, swelling, difficulty breathing through the nose, and "flickering of flies" in front of her eyes. Objectively: generalized edema. Blood pressure 190/110 mm Hg, protein in urine when it is boiled. What is the diagnosis ?

A. Moderate preeclampsia.

B. Severe preeclampsia.

C. Chronic arterial hypertension.

D. Gestational hypertension.

E. Eclampsia.

Correct answers:1-A, 2-A, 3-B.

Recommendations (instructions) for the performance of tasks (professional algorithms, indicative maps for the formation of practical skills and abilities, etc.)

Early gestosis

The concept of "early gestosis" exists only in the practice of obstetricians - gynecologists CIS. In obstetric practice of foreign countries such thing does not exist, there is state assessed as 'minor' complications of pregnancy, or "unpleasant symptoms during pregnancy". But in the HIC-10, section XV, topic O21 includes vomiting varying degrees of severity during pregnancy, and headings O26 and O28 provide other conditions associated with pregnancy. We therefore consider it appropriate to consider in a separate section of the particular state of pregnancy, under the heading "early gestosis".

The pathology of pregnancy is divided into two groups (for the clinical course):

1. Early gestosis, which often occurs - vomiting of pregnant, excessive salivation, pruritus gravidarum.

2. Early gestosis, which is rare - dermatosis of pregnant, cholestatic hepatosis pregnancy, acute liver steatosis of pregnant, tetania gravidarum, chorea gravidarum, osteomalacia gravidarum, bronchial asthma of pregnancy.

Etiology and pathogenesis of early gestosis.

To explain the causes of early gestosis suggested many theories (toxemic, allergic, endocrine, neurogenic, psychogenic, immune, etc.).

In modern theories of early gestosis is considering as a consequence of violations of neuro-vegetative-immuno-endocrinic-metabolic-regulation, in which the leading role played by the functional state of CNS.

It lasted from excessive impulse fetal egg causes excessive irritation areas of the hypothalamus, brain stem and entities that are involved in the regulation of autonomic functions and inhibition of neural processes in the cerebral cortex. As a consequence - the predominance of excitatory processes in the brain stem (in particular, vomiting center).

Risk factors of early gestosis

• Spouse or acquired deficiency of the neuroendocrine regulation of adaptive responses (hypoxia, infection, intoxication, violation of the regime in childhood and adolescence, and the like).
• Extragenital diseases.
• Violations of the function of the nervous system, stress situations.
• Past medical genital organs, which can cause changes in the receptor apparatus of the uterus and the occurrence of pathological impulse to the CNS.

Vomiting of pregnant

Vomiting of pregnant (emesis gravidarum) is a complex clinical syndrome. The act of vomiting - one of the manifestations of the disease, which develops diarrheal, nimble, secretory, sensory, vascular and other disorders.

In terms of severity, light vomiting (less than 5 times a day), moderate (5 to 10 times) and severe vomiting (hyperemesis gravidarum) with metabolic disorders (more than 10 times a day). It should be noted that in 50% of pregnant women in early pregnancy occurs "morning vomiting, which does not have a pathological nature and does not require medical treatment.

Degree	Status	Frequency of vomiting	Weight loss	HR	laboratory research
I. Light	Satisfactory	Up to 5 times	Not more than 3 kg	Norm	Norm

(neurosis phase)					
II. Moderate (toxicosis phase)	Relatively satisfactory	6 -10 times	More than 3 kg	Up to 100	Acetone in the urine ++
III. Severe (dystrophy phase)	Severe	Up to 25 times and more	8 - 10 kg and more	Above 100	Acetone in the urine ++++

In determining the severity of the disease determine the clinical manifestations: State of the pregnant woman, dry skin, yellow sclera and skin, the presence or lack of appetite, salivation, nausea, vomiting frequency and intensity, the curve of weight loss, dehydration, heart rate, blood pressure, sub-febrile temperature, value diuresis. Assessment of the severity of vomiting pregnant includes host and the results of laboratory tests: specific gravity of urine, the presence of ketonuria, the presence of acetonitrile, well in urine, the level of bilirubin, creatinine in the blood.

To diagnose and monitor the effectiveness of treatment conducted the following studies:

• control of body weight;
• control of diuresis;
• The dynamics of BP;
• Determining hematocrit and hemoglobin;
• urine (specific gravity, acetone, ketone bodies, protein);
• biochemical study of the blood (bilirubin and its fractions, liver enzyme, creatinine);
• Determining the level of electrolytes in the blood (K, Na, Cl);
• identification of acid-base balance Blood (KFL).

Differential diagnosis of vomiting pregnant should be conducted with the following diseases: food poisoning, gastritis, pancreatitis, pyelonephritis, cholelithiasis, hepatitis, appendicitis, meningitis, brain tumors, etc.

Treatment of vomiting pregnant

A large number of recommended treatments reflect the majority of theories that explain the causes of vomiting pregnant. But uncontrolled use of these treatments for early gestosis in some cases may be harmful, taking into account the fact that in early pregnancy occurs embryogenesis.

Mild vomiting. It is recommended not to hospitalize pregnant women with mild vomiting. We recommend correction of dietary intake: minor (5-6 times a day), balanced nutrition, drink vitamins. Patients were given a light meal, which is well absorbed (biscuits, mashed potatoes, tea, cocoa, coffee, lean meat, fish, eggs, butter, etc.). Take her trail, lying, frequently and in small portions, preferably in chilled.
Non-traditional methods of treatment can be used: reflexology, hypnosis, central electroanalgesia, homeopathic therapy, and others.
Moderate and severe vomiting: pregnant woman needs hospitalization and medical treatment.
Before the reception ability to hold food, medicines should be entered only parenterally. For the influence of the central nervous system as the main pathogenetic factor, to harassment excitability of the vomiting center designate: Etaperazin to 0,002 g, orally, 3-4 times a day, 10-12 days (if the patient holds the tablets); torekan by 1.0 ml intramuscular injection, or 6.5 mg in the form of tablets or rectal suppositories 2 -3 times a day; droperidol on 0,5 - 1,0 ml intramuscularly 1-3 times a day; cerucal 10 mg intramuscularly or orally.
To eliminate hypoproteinemia and dehydration, intravenous targeted administration of protein (plasma), Ringer-Locke solution is necessary. In general, all infusions are carried out only according to indications based on laboratory tests. The amount of fluid is determined by the state of the water balance.
Complication: Excessive vomiting can lead to dehydration, exhaustion, and Mallory-Weiss syndrome (rupture of the stomach lining). In some cases, it is necessary to prematurely terminate the mother's pregnancy. The indication for this is the lack of effect of treatment within 7-10 days, threatening the life of the mother, stable tachycardia, hyperthermia, proteinuria and progressive cylindruria, the presence of jaundice and acetone in the urine.
Prevention of early preeclampsia is the early identification of pregnant women at risk for early development of preeclampsia, and their rehabilitation, treatment of comorbidity, and early registration of pregnancy.

Drooling (*hyper salivation) of *pregnant woman.

Drooling (ptyalismus) observed at pukes, and sometimes self-expression and preeclampsia. The number of saliva during hyper salivation may reach 1.0 liters per day. Drooling does not involve serious disturbances in the body, but also suppresses the psyche of patients, causes maceration of the skin and mucous membrane of the lips. Sometimes, in order to reduce the secretion of the salivary glands prescribed intramuscular injection of atropine on 0,5 ml 0,1% solution of 2 times a day. Mouth

rinse with infusion of sage, mint, chamomile, oak, measles and other astringent agents. Termination of pregnancy in this pathology is not necessary.

Pruritus gravidarum

Itching of pregnancy (pruritus gravidarum) which can be restricted by the region of the vulva and spread all over the body causing irritability and disturbances of sleep is the most frequent form of dermatosis.

Itching of pregnant women should be differentiated with allergic reactions, mycoses, trichomoniasis, diabetes mellitus and helminthoses.

Antihistamine and sedative drugs, vitamins of B group and ultraviolet radiation are used for the treatment.

Rare forms of gestosis

Dermatosis of pregnant women is a group of diseases that arise in connection with pregnancy and disappear after its termination. Prevalence adds 1 in 200 pregnancies. Skin diseases during pregnancy depend on the functional imbalance between the cortex and the subcortex, increased excitability of the autonomic nervous system, which is accompanied by disturbances in the innervation of the skin, metabolic, microcirculatory changes in it. Dermatosis of pregnant women manifests itself in the form of itching of the skin, less often in the form of eczema, urticaria, erythema, papular rashes. The disease does not affect the condition of the fetus.

Treatment of dermatosis: food with limited fats and proteins, drugs that regulate the function of the nervous system and metabolism, antihistamines, rarely systemic or local corticosteroids.

Pemphigoid of pregnant women is a liquid but severe pathology, which is accompanied by premature birth, fetal growth retardation, fetal distress, and increased perinatal mortality. Itchy rashes first appear on the skin of the abdomen near the navel, and then spread to the limbs, arms and reaching the feet. First, these are papules and plaques, after 2 weeks they transform into vesicles and dense vesicles. Diagnosis is based on the detection of complement in the basement membrane of the epidermis. Treatment: Topical 1% hydrocortisone cream or systemic corticosteroids and sedative antihistamines.

Pregnancy with **cholestatic hepatosis** can occur at different stages of pregnancy, but most often occurs in the third trimester and occurs in 1 in 2000 pregnant women. The pathogenesis of this disease has not been studied sufficiently. Factors such as the inhibitory effect of progesterone on the function of cholexcretion, increase in cholesterol production, a decrease in the tone of the biliary system, and an increase in the viscosity of bile can be significant in origin. The onset of jaundice is preceded

by the spread of intense itching of the skin. The general situation of patients with cholestatic hepatosis of pregnant women does not change significantly. During laboratory examination, moderate leukocytosis, neutrophilosis, as well as something more pronounced than in uncomplicated pregnancy, an increase in WIDE, is determined. The content of bilirubin in the blood is increased (up to 90 mmol / l) and quickly returns to normal after delivery. Alkaline phosphatase levels rise. There was no increase in liver enzymes such as ALT and AST.

A differential diagnosis should be made when the liver and biliary tract are damaged by mechanical or infectious factors, as well as a result of metabolic disorders. Jaundice may develop as a result of severe intoxication in severe early preeclampsia.

Treatment of cholestatic hepatosis consists in the appointment of a balanced diet (diet No. 5) and in the use of funds that help eliminate itching. 3 of this order to use cholestyramine 12-15 mg / day (salt binds bile acids). The use of ursodeoxyholic acid improves liver function. In some cases, this may become necessary when terminating a pregnancy due to an exacerbation of the clinical manifestations of the disease and damage to the fetus. It is advisable to prescribe vitamin K a week before the scheduled birth to reduce the risk of postpartum hemorrhage.

Acute liver steatosis of pregnant women is one of the most severe forms of preeclampsia, which often occurs in late pregnancy (33-40 weeks) with a prevalence of 1 per 100,000 pregnant women and is characterized by a very acute onset and high mortality. Morphologically, this is a pronounced fatty degeneration of the hepatocyte in the absence of signs of necrosis. In the clinical course of fatty degeneration of the liver, two stages are distinguished. Before jaundice, there is abdominal pain, weakness, headache, nausea, debilitating heartburn, itchy skin. Jaundice aggravates the symptoms of hepatic and renal failure, intoxication, encephalopathy, DIC syndrome develops, and fetal death often occurs. The immediate cause of death in a pregnant woman is cerebral edema and severe bleeding coagulopathy.

Treatment of this serious complication is correction of coagulopathy and electrolyte imbalances, cardiorespiratory support, and delivery as feasible by the vaginal route, if possible.

Tetania gravidarum

Tetany of pregnancy (tetania gravidarum) can manifest by convulsions of the upper (“obstetrician’s hands”) or lower extremities (“ballerina’s leg”), face (“fish’s mouth”). Disease is related to the reduction of function of parathyroid glands, disturbance of calcium metabolism, rheumatism. Parathyreoidin, calcium preparations, vitamin of B groups, calciferol (D) and tocopherol acetate (E) are used.

During the severe course of the disease or ineffective treatment it is recommended to make an abortion.

Chorea gravidarum is the term given to chorea occurring during pregnancy. This is not an etiologically or pathologically distinct morbid entity but a generic term for chorea of any cause starting during pregnancy. Chorea is an involuntary abnormal movement, characterized by abrupt, brief, nonrhythmic, nonrepetitive movement of any limb, often associated with no patterned facial grimaces.

Chorea can also be a manifestation of drug toxicity (for example, anticonvulsants, antiparkinson agents, neuroleptics, steroids, and estrogen), or a result of an infectious disease such as meningovascular syphilis, Lyme disease, viral encephalitis, and many others.

Drug treatment is indicated for patients with severe disabling chorea. It is treated with haloperidol, chlorpromazine alone or in combination with diazepam, and also pimozide, which is another neuroleptic drug which may have fewer adverse effects than haloperidol. Valproic acid, chloral hydrate, risperidone, or phenobarbital can also be used. Psychotherapy, massage, and muscle stretching exercises used to relieve symptoms during an attack.

Osteomalacia gravidarum is an extremely rare and predetermined decalcification of bone and soft tissue. Most often affects the bones of the pelvis and spine, which is accompanied by their painless stretching. During the palpation of the pubic symphysis a pregnant woman feels painfulness. On X-ray examination of the pelvis sometimes divergence of the bones of the pubic symphysis is detected, however, despite of real osteomalacia, destructive changes in bones are absent.

Treatment of osteomalacia is to normalize phosphor-calcium metabolism. At the present stage, the entire metabolism of minerals in bones, leading to their resorption, is diagnosed using densitometry - a modern ultrasound method for studying bone. Fish fat, calciferol (vitamin D) and ultraviolet radiation are used.

Prevention of early gestosis

Prevention of early preeclampsia consists in the treatment of chronic extragenital diseases of pregnant women, psychoemotional rest of pregnant women, and reducing the influence of environmental factors.

Pregnant women with early preeclampsia, especially with its recurrence, put at risk obstetric and perinatal pathologies (miscarriage, pregnancy, placental insufficiency, fetal hypotrophy, pathology of the newborn), including the prevention of these complications.

Hypertensive disorders in pregnancy.

Hypertension is one of the common medical complications of pregnancy and contributes significantly to maternal and perinatal morbidity and mortality. Hypertension is a sign of an underlying pathology which may be preexisting or appears for the first time during pregnancy. The identification of this clinical entity and effective management play a significant role in the outcome of pregnancy, both for the mother and the baby. In the developing countries with inadequately cared pregnancy, this entity on many occasions remains undetected till major complications supervene. In Ukraine, there is different terminology regarding this pathology. Until then, use the term - hypertension, pregnancy, this can be considered obsolete. The modern terms are – preeclampsia, hypertensive disorders of pregnancy.

Classification of Hypertension in Pregnancy (National High Blood Pressure Education Program 2000)

Disorder	Definition	Disorder	Definition
Hypertension	BP ≥ 140/90 mm Hg measured 2 times with at least a 6-hour interval	Chronic hypertension with super imposed preeclampsia and eclampsia	The common causes of chronic hypertension: (a) Essential hypertension (b) Chronic renal disease (reno vascular) (c) Coarctation of aorta (d) Endocrine disorders (diabetes mellitus, pheochromocytoma, thyrotoxicosis (e) Connective tissue diseases (Lupus erythematosus). t The criteria for diagnosis of super imposed pre-eclampsia: (i) New onset of proteinuria >0.5 gm/24 hours specimen. (ii) Aggravation of hypertension. (iii) Thrombocytopenia or (iv) Raise of liver enzymes
Proteinuria	Urinary excretion of ≥ 0.3 gm protein/24 hours specimen or 0.1 gm/L		
Gestational hypertension	BP ≥ 140/90 mm Hg for the first time in pregnancy after 20 weeks, without proteinuria		
Pre-eclampsia	Gestational hypertension with proteinuria		
Eclampsia	Women with pre-eclampsia complicated with convulsions and/ or coma		
Chronic hypertension	Known hypertension before pregnancy or hypertension diagnosed first time before 20 weeks of pregnancy		
Superimposed pre-eclampsia or eclampsia	Occurrence of new onset of proteinuria in women with chronic hypertension		

DC Dutta, Hiralal Konar, 2013

Pre-eclampsia

Pre-eclampsia (PE) is a multisystem disorder of pregnancy previously defined by the onset of hypertension accompanied by significant proteinuria after 20 weeks of

gestation. Recently, the definition of PE has been broadened.2–5 PE typically affects 2%–5% of pregnant women and is one of the leading causes of maternal and perinatal morbidity and mortality, especially when the condition is of early onset.6,7 Globally, 76 000 women and 500 000 babies die each year from this disorder.8 Furthermore, women in low-resource countries are at a higher risk of developing PE compared with those in high-resource countries.

Classification Preeclampsia HIC-10: O13-O15

- Light Preeclampsia or gestational hypertension without significant proteinuria
- Preeclampsia moderate
- Heavy Preeclampsia
- Preeclampsia unspecified
- Eclampsia
- Eclampsia during pregnancy
- Eclampsia childbirth
- Eclampsia in the postpartum period
- Eclampsia unspecified for the period
- Etiopatogenesis of Preeclampsia

Risk factors of preeclampsia:

1. Extragenital pathology: kidney, liver, hypertension, chronic lung and bronchus, heart defects, diabetes mellitus, obesity.

2. Obstetric and gynecologic risk factors:

• presence of hypertensive disorders in family history;
• a previous pre-eclampsia;
• age of the pregnant woman (less than 20, more than 30 years);
• hydramnios, twins;
• anemia of pregnant women;
• isosensibilization for Rh-factor and the ABO-system;

3. Social and domestic factors:

• bad habits;
• occupational hazards;
• unbalanced diet.

Knowledge of risk factors of preeclampsia and allow for timely detection of risk groups on the occurrence of preeclampsia.

Diagnosis

Diagnosis of preeclampsia at gestational age more than 20 weeks in the presence of blood pressure more than 140/90 mm hg or with an increase in diastolic blood pressure by 15% of the initial in the first trimester of pregnancy in the presence of proteinuria (protein in daily urine more than 0.3 g / l) and general edema (an increase in the body weight of a pregnant woman more than 900.0 g per week, or 3 kg per month). The diagnosis of preeclampsia determines the presence of hypertension and proteinuria or general edema or the presence of all three signs.

Diagnostic criteria of severe preeclampsia / eclampsia.

Diagnosis	Diast. BP mm. hg	Proteinuria g / ext	Other signs
Gestational hypertension or mild preeclampsia	90-99	<0,3	-
Preeclampsia moderate	100-109	0,3-5,0	Swelling in the face, hands Sometimes a headache
Severe preeclampsia	≥110	>5	Swelling generalize, significant Headache Dysopia Pain in the epigastrium and / or right hypochondrium Hyperreflexia Oliguria (<500 ml / ext) Thrombocytopenia
Eclampsia	≥90	≥0,3	Convulsive attack (one or more)

NB! Available in a pregnant woman at least one of the criteria for more severe preeclampsia is the basis for a diagnosis

To diagnose preeclampsia also need to identify additional clinical and laboratory criteria. Additional clinical and laboratory criteria of preeclampsia

Signs of preeclampsia	Light	Moderately	Heavy
Uric acid, mlmol / l	<0,35	0,35-0,45	> 0,45

Urea, mlmol / l	<4,5	4,5-8,0	> 8
Creatinine, Umol / l	<75	75-120	> 120 or oliguria
x 109 platelets / l	> 150	80-150	<80

Treatment of Preeclampsia

Provision of assistance depends on the pregnant woman, the parameters of BP and proteinuria.

Mild Preeclampsia

In the case of the pregnant woman match the criteria for mild Preeclampsia of pregnancy before 37 weeks of possible care in a hospital day stay. Conduct research: measuring blood pressure, monitoring fluid balance and edema, checking fetal movements.

Conduct laboratory tests: general urine analysis, daily proteinuria, plasma creatinine and urea, hemoglobin, hematocrit, platelet count, coagulogram, ALT and AST, fetal determination (if possible, not a stress test). Drug therapy is not indicated. Do not limit your intake of liquids and table salt.

Indications for hospitalization

The appearance of at least one sign of moderate preeclampsia; fetal hypoxia.

In the case of a stable state of women within the criteria of light preeclampsia tactics of pregnancy expectant. Delivery – per vias naturalis.

Moderate Preeclampsia

Hospitalization of a pregnant woman in a hospital. Initial laboratory tests: complete blood count, hematocrit, platelet count, coagulogram, ALT and AST, blood group and Rh factor (in the absence of accurate information), general urinalysis, determination of daily proteinuria, creatinine, urea, uric acid, plasma electrolytes (sodium and potassium), fetal health assessment.

Protective regime - limitation of physical and mental stress.

Nutrition: High-protein food, no salt and water restrictions, and non-thirsty foods.

A complex of vitamins and minerals for pregnant women, if necessary, an iron supplement. When diastolic BP> 100 mm Hg Appointment of antihypertensive drugs (metildopa of 0,25-0,5 g 3-4 times a day, maximum dose - 3 g per day, and if necessary add nifedipine 10 mg 2-3 times a day, maximum daily dose - 100 mg).

In term pregnancy before 34 weeks of prescribed corticosteroids for prevention of respiratory distress syndrome (RDS) - dexamethasone 6 mg every 12 hours, four times over 2 days.

Research is carried out with a fixed multiplicity of dynamic monitoring indicators:

- blood pressure control - every 6 hours on the first day, then - twice a day;

• auscultation of the fetal heart every 8 hours;
• urine - daily;
• daily proteinuria
• hemoglobin, hematocrit, coagulogram, platelet count, ALT and AST, creatinine Urea - every three days;
• Daily monitoring of fetus

In progress of preeclampsia begin preparations for delivery:

Delivery.

Progression of preeclampsia or deterioration of fetal state - begin preparations for delivery:

- in the case of "immature" cervix - prostaglandin E2 (locally).
- not effective – Cesearian section
- “mature” cervix – stimulation of patrimonal activity and delivery per vias naturalis.

Go to the conduct of pregnant for heavy preeclampsia algorithm is performed in cases of increase of at least one of the following:

• diastolic BP> 110 mm Hg.;
• headache;
• visual impairment;
• pain in the epigastric area and right hypogastric;
• signs of liver failure;
• oliguria (<25 ml / year);
• thrombocytopenia (<100 • 109 / L);
• Signs of WIS-syndrome;
• Enhancement of ALT and AST.

Sever Preeclampsia

The pregnant woman is admitted to the Anesthesiology Unit and Intensive Care Unit Level III to assess the maternal and fetal risk of pregnancy and select a delivery method within 24 hours. Allocate an individual ward for round-the-clock supervision of medical personnel. Immediate consultation by therapists, neurologist, ophthalmologist. Catheterization of peripheral veins. Initial laboratory tests: complete blood count, hematocrit, platelet count, coagulogram, ALT and AST, blood group and Rh factor (if not), total urine, determination of proteinuria, creatinine, urea, total protein, bilirubin and its fractions, electrolytes.

Careful observation of the dynamic:

• Blood pressure control - every hour;
• Urine test - every 4 hours;
• Monitoring of hourly urine output (bladder catheterization)

• Hemoglobin, hematocrit, platelet count, liver function tests, plasma creatinine - every day;
• Auscultation of the fetal heart - every 15 minutes;

- Monitoring of the fetus: the number of movements in 1 hour, heart rate - every day, if possible - Doppler monitoring of blood circulation in the vessels of the umbilical cord, vessels of the fetal brain, placenta and fetoplacental complex;
- Assessment of amniotic fluid and fetal biophysical profile;
- Cardiotocography

Treatment.

Conservative treatment (severe hospital beds). In term of pregnancy to 34 weeks - corticosteroids for the prevention of RDS-dexamethasone 6 mg every 12 hours, four times, for 2 days. The tactics is active with delivery in the next 24 hours from the moment of diagnosis, regardless of the gestational age.

Requirements for the results of the work.

1. External obstetric examination.
2. Auscultation of the fetal heartbeat
3. Internal obstetric research (on a phantom)
4. Collect history
5. Make a plan for clinical and laboratory examination of a pregnant woman with early and late gestosis
6. Evaluate the results of clinical and laboratory tests in a pregnant woman with early and late gestosis.
7. Prescribe treatment for early and late gestosis.
8. Provide first aid for an eclampsia attack
9. Evaluate the results of the biophysical profile of the fetus (BPP)
10. Evaluate the results of a dopplerometric study of blood flow in the umbilical artery
11. Determine and evaluate the fetal heartbeat (auscultatively, CTG).
12. Assess the condition of the newborn according to the Apgar scale

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

Non-typical situational tasks:

1. Gravida II, 30 years old, came to the maternity hospital with complaints of headache, pain in the epigastric region, visual impairment, edema of the lower limbs, anterior abdominal wall. The gestation period is 38 weeks.

Menstruation from the age of 12, regular, last 4-5 days in 28 days, painless. Sex life since 22 years.

The first pregnancy ended with a medical abortion at 10 weeks of pregnancy. The first half of the pregnancy was physiological. In the last 3 weeks, edema appeared on the legs. She did not attend the consultation.

General condition of moderate severity, excited, blood pressure 180/120, 175/115 mm Hg, edema of the lower limbs, abdominal wall. The position of the fetus is longitudinal, the head is in front, pressed against the entrance to the small pelvis. The fetal heartbeat is muffled, rhythmic, 150 bpm on the right, below the navel. During the external obstetric examination, doctor noticed fibrillar twitching of facial muscles and upper limbs.

Blood analysis: Hb - 126 g/l; Ht - 41%, platelets 155 × 109 /l. Urine analysis: proteinuria 4.5 g/l, cylindruria.

Task:

1. Make a diagnosis.
2. What are the medical tactics in this case?
3. With what is it necessary to carry out differential diagnosis for this pathology?
4. How long should magnesium therapy continue after childbirth?

Answer:

1. Pregnancy II, 38 weeks. Longitudinal lie, occipital anterior right presentation. Eclampsia.

2. Doctor's tactics: record the time and call colleagues for help; to protect the woman from damage by holding her during a seizure; prepare equipment (air lines, suction, mask, Ambu bag, oxygen) and magnesium sulfate for bolus administration.

1.After a seizure, if necessary, clean the oral cavity and larynx with an aspirator. Carry out auscultation of the lungs. Place the woman on a flat surface in a position on her left side or with the uterus shifted to the left by 15-20°. Provide oxygen (100% oxygen at a rate of 8-10 L per minute), assess breathing after a seizure, pulse oximetry, lung auscultation to rule out aspiration or pulmonary edema. If prolonged apnea develops, immediately start forced ventilation with a mask with 100% oxygen supply. If convulsions recur or the patient remains in a coma, muscle relaxants (2 mg/kg suxamethonium) are administered and the patient is transferred to artificial lung ventilation (VNA). After the attack, immediately start therapy with magnesium sulfate (inject a bolus of 4 g (16 ml of 25% saline solution + 34 ml of 0.9% sodium chloride solution) for 5 minutes IV, then continue at 1–2 g/h). If the attack is repeated, another 2 g (8 ml of 25% solution) is administered intravenously for 3-5 minutes, do not use diazepam as an alternative to magnesium sulfate. Instead of an additional bolus of magnesium sulfate, you can use diazepam 5-10 mg IV (2-5 mg per minute, maximum 10 mg), OR midazolam 5-10 mg IV for 2-5 minutes, OR clonazepam 1-2 mg IV within 2–5 min. Administer AGT (nifedipine (in drops or chewable tablets), parenteral urapidil or parenteral beta-adrenoblockers) Aim to lower systolic blood pressure to 130–150 mm Hg. and diasyolic blood pressure up

to 80–90 mm Hg. After a seizure, immediate delivery by caesarean section is indicated.
2.Differential diagnosis is carried out with epilepsy, acute disturbance of cerebral circulation, encephalitis, meningitis, rupture of an aneurysm of cerebral vessels, hysteria, uremic coma.
3.Magnesium therapy should last at least 48 hours after childbirt.

Test tasks:

1. A 25 y.o. pregnant woman in her 34th week was taken to the maternity house in grave condition. She complains of headache, visual impairment, nausea. Objectively: solid edema, AP170/130 mm Hg. Suddenly there appeared fibrillary tremor of face muscles, tonic and clonic convulsions, breathing came to a stop. After 1,5 minute the breathing recovered, there appeared some bloody spume from her mouth. In urine: protein - 3,5 g/L. What is the most probable diagnosis?

A. Eclampsia

B. Epilepsy

C. Cerebral hemorrhage

D. Cerebral edema

E. Stomach ulcer

2. A 28 year old parturient complains about headache, vision impairment, psychic inhibition. Objectively: AP200/110 mm Hg, evident edema of legs and anterior abdominal wall. Fetus head is in the area of small pelvis. Fetal heartbeats is clear, rhythmic, 190/min. Internal investigation revealed complete cervical dilatation, fetus head was in the area of small pelvis. What tactics of labor management should be chosen?

A. Forceps operation

B. Cesarean

C. Embryotomy

D. Conservative labor management with episiotomy

E. Stimulation of labor activity

3. A 28-years-old woman complains of nausea and vomiting about 10 times per day. She has been found to have body weight loss and xerodermia. The pulse is 100 bpm. Body temperature is 37, 2oC. Diuresis is low. USI shows 5-6 weeks of pregnancy. What is the most likely diagnosis?

A. Moderate vomiting of pregnancy

B. Mild vomiting of pregnancy

C. I degree preeclampsia

D. Premature abortion

E. Food poisoning

4. A woman at 30 weeks pregnant has had an attack of eclampsia at home. On admission to the maternity ward AP- 150/100 mm Hg. Predicted fetal weight is 1500 g. There is face and shin pastosity. Urine potein is 0, 66o/oo. Parturient canal is not ready for delivery. An intensive complex therapy has been started. What is the correct tactics of this case management?

A. Delivery by cesarean section *

B. Continue therapy and prolong pregnancy for 1-2 weeks

C. Continue therapy and prolong pregnancy for 3-4 weeks

D. Labor induction by intravenous oxytocin or prostaglandins

E. Treat preeclampsia and achieve the delivery by way of conservative management

5. A 25 y.o. pregnant woman in her 34th week was taken to the maternity house in grave condition. She complains of headache, visual impairment, nausea. Objectively: solid edema, BP-170/130 mm Hg. Suddenly there appeared fibrillary tremor of face muscles, tonic and clonic convulsions, breathing came to a stop. After 1,5 minute the breathing recovered, there appeared some bloody spume from her mouth. In urine: protein - 3,5 g/L. What is the most probable diagnosis?

A. Eclampsia

B. Epilepsy

C. Cerebral hemorrhage

D. Cerebral edema

E. Stomach ulcer

6. A 28-years-old woman complains of nausea and vomiting about 10 times per day. She has been found to have body weight loss and xerodermia. The pulse is 100 bpm. Body temperature is 37, 2oC. Diuresis is low. USI shows 5-6 weeks of pregnancy. What is the most likely diagnosis?

A. Moderate vomiting of pregnancy

B. Mild vomiting of pregnancy

C. I degree preeclampsia

D. Premature abortion

E. Food poisoning

7. A woman at 30 weeks pregnant has had an attack of eclampsia at home. On admission to the maternity ward AP- 150/100 mm Hg. Predicted fetal weight is 1500 g. There is face and shin pastosity. Urine protein is 0, 66 g|l. Parturient canal is not ready for delivery. An intensive complex therapy has been started. What is the correct tactics of this case management?

A. Delivery by cesarean section

B. Continue therapy and prolong pregnancy for 1-2 weeks

C. Continue therapy and prolong pregnancy for 3-4 weeks

D. Labor induction by intravenous oxytocin or prostaglandins

E. Treat preeclampsia and achieve the delivery by way of conservative management

Correct answers: 1-A, 2-A, 3-A, 4-A, 5-A, 6-A, 7-A

4.Current success rate

Current control: oral survey, assessment of communication skills during role play, solving situational clinical tasks, assessment of activity in class.

Final control: credit.

Evaluation of the current educational activity in a practical lesson:

1. Evaluation of theoretical knowledge on the subject of the lesson:

- methods: survey, solving a situational clinical problem

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

2. Assessment of work with patients on the subject of the lesson:

- methods: assessment of: a) communication skills of communication with the patient b) the correctness of prescribing and evaluating laboratory and instrumental studies before using a contraceptive c) the ability to conduct family planning counseling.

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

The grade for one practical lesson is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Criteria of ongoing assessment at the practical class

«5»	The student is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills and interprets the results of clinical, laboratory and instrumental studies, expresses his opinion on the topic, and 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 and interprets the results of clinical, laboratory and instrumental studies with some errors, expresses his opinion on the topic, and demonstrates clinical thinking.
«3»	The student does not have enough material, uncertainly participates in the discussion and solution of the situational clinical problem, demonstrates practical skills during the examination and interprets the results of clinical, laboratory and instrumental studies with significant errors.
«2»	The student does not have the material, does not participate in the discussion and solution of the situational clinical problem, and does not demonstrate practical skills during the examination and interpret the results of clinical, laboratory and instrumental studies.

5. Recommended literature

Basic:

1. Obstetrics: Normal and Problem Pregnancies, 7th Edition S. Gabbe, J. R. Niebyl, J. L. Simpson, M. B. Landon, H. L. Galan, E. R. M. Jauniaux, D. A. Driscoll, V. Berghella and W. A. Grobman, Elsevier. – 2017. – 1320 pp.
2. Williams Manual of Obstetrics (24th Ed) F. G. Cunningham, K. J. Leveno, S. L. Bloom, C. Y. Spong, J. S. Dashe, B. L. Hoffman, B. M. Casey, J. S. Sheffield, McGraw-Hill Education/Medical. – 2014. – 1377 pp.
3. DC Dutta's Clinics in Obstetrics / edited by Hiralal Konar- 2021- 306 pp.
4. Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th Ed). Jeremy Oats, Suzanne Abraham. Elsevier. 2016. – 384 pp.
5.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 pp.
6.Mayo Clinic Guide to a Healthy Pregnancy. (2 nd Ed) Myra J.Wick / ebook- 2018. – 946 pp.
7.Clinical Obstetrics and Gynaecology: 4th Edition/ Brian A. Magowan, Philip Owen, Andrew Thomson. - 2018. – 416 pp.
8.Gynecologic Health Care: With an Introduction to Prenatal and Postpartum Care: With an Introduction to Prenatal and Postpartum Care 4th Edition / K. D. Schuiling, F. E. Likis – 2020/- 500 pp.
9.Oats, Jeremy Fundamentals of Obstetrics and Gynaecology [Text]: Liewellyn-Jones Fundamentals of Obstetrics and Gynaecology / J.Oats, S.Abraham. – 10th ed. – Edinburgh [etc.]: Elsevier, 2017. – VII, 375 p.
10,Obstetrics: Normal and Problem Pregnancies, 7th Edition S. Gabbe, J. R. Niebyl, J. L. Simpson, M. B. Landon, H. L. Galan, E. R. M. Jauniaux, D. A. Driscoll, V. Berghella and W. A. Grobman, Elsevier. – 2017. – 1320 pp.
11. Obstetrics and Gynecology : in 2 vol. : textbook. Vol. 1. Obs tet rics / V.I. Gry shchenko, M.O. Shcherbina, B.M. Ventskivskyi et al. ; edited by V.I. Gryshchenko, M.O. Shcherbina. — 2nd edition. — K. : AUS Medicine Publishing, 2018. — 392 p.
12.Oxford Textbook of Obstetrics and Gynaecology / edited by Sabaratnam Arulkumaran, William Ledger et all/ - 2020- 2546 pp.

Additional:

1. Obstetrics by Ten Teachers (20th ed) Louise C. Kenny, Jenny E. Myers. – CRC Press. – 2017. – 342 pp.
2. Current Progress in Obstetrics and Gynaecology. Vol 4. Eds. J. Studd, Seang Lin Tan, F. Chervenak. – 2017. – 419 pp.
3. Recent Advances in Obstetrics and Gynaecology. Vol 26. W. Ledger, J. Clark. – JP Medical. – 2015.– 230 pp.

4. Proactive Support of Labor. Reuwer P., Bruinse H., Franx A. – 2015. – 216 pp.
5. The model of screening for preeclampsia in the second and third trimesters of gestation / L. Berlinska, V. Marichereda, O. Rohachevskyi, A. Volyanska, G. Lavrynenko // Electronic Journal of General Medicine. - 2023 - 20(3), em473, https://www.ejgm.co.uk/
6. Current "Clinical protocols", approved by order of the Ministry of Health of Ukraine for Obstetrics and Gynecology.

- Order of the Ministry of Health of Ukraine dated August 9, 2022 No. 1437 "On approval of standards of medical care "Normal pregnancy".
- Order of the Ministry of Health of Ukraine dated January 26, 2022 No. 170 "On approval of the Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Physiological childbirth".
- Order of the Ministry of Health of Ukraine dated January 24, 2022 No. 151 "On approval of the Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Hypertensive disorders during pregnancy, childbirth and the postpartum period."
- Order of the Ministry of Health of Ukraine dated 09/24/2022 No. 1730 "On approval of standards of medical care "Ectopic pregnancy".

Electronic information resources

1. https://www.cochrane.org/
2. https://www.ebcog.org/
3. https://www.acog.org/
4. https://www.uptodate.com
5. https://online.lexi.com/
6. https://www.ncbi.nlm.nih.gov/
7. https://pubmed.ncbi.nlm.nih.gov/
8. https://www.thelancet.com/
9. https://www.rcog.org.uk/
10. https://www.npwh.org/
11. http://www.aagu.com.ua/ асоціація акушер-гінекологів України