MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

CONFIRMED by
Vice-rector for scientific and pedagogical work
Eduard BURIACHKIVSKYI
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THE METHODICAL RECOMMENDATIONS FOR PRACTICAL CLASS

International Faculty, Course VI

Discipline “Obstetrics and Gynecology”

Practical lesson №31. Topic: Early gestosis. Hypertensive conditions during pregnancy. Preeclampsia. Eclampsia.

Approved:

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

Protocol No. 1 dated August 29, 2024.

Head of the Department, Doctor of Medicine, Professor _____ (I.Z. Gladchuk)

Developer:
Assistant professor of
obstetrics and gynecology department_____ (L.I. Berlinska)

Practical lesson № 31. Early gestosis. Hypertensive conditions during pregnancy. Preeclampsia. Eclampsia.

Learning objectives

The overall aim of this topic is to gain basic knowledge about the etiology, pathogenesis, the clinic, methods and algorithm for diagnosing preeclampsia and eclampsia in pregnant women. Get knowledge about modern treatment and prevention principles of pregnant women with preeclampsia during pregnancy and principles of rehabilitation. Develop a special vigilance in the prevention and early diagnosis preeclampsia and eclampsia of pregnant women in students. Form a sense of moral and legal responsibility for the timeliness and quality of medical care obstetric patients. To familiarize students with the contribution of Ukrainian midwifery school issues prevention, diagnosis of preeclampsia and eclampsia of pregnant women, treatment and rehabilitation patients.

Basic concepts:

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

I. ORGANIZATIONAL STAGE

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

The frequency of preeclampsia of pregnant has no tendency to decrease (from 1,5 to 23,3% of all pregnancies), the pathology related to life-threatening complications of pregnancy and determine the rates of maternal and perinatal morbidity and

mortality. The structure of mortality during pregnancy, childbirth and postpartum preeclampsia occupy the first place. Therefore, timely diagnosis, prevention and treatment of pregnant women with preeclampsia and eclampsia are one of the most urgent problems of modern obstetrics, Health Review of the mother and newborn.

II. 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:

- Communication and clinical examination skills.
- Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
- Ability to make a preliminary and clinical diagnosis of the disease
- Ability to perform medical manipulations
- Ability to determine the tactics of physiological pregnancy, physiological labor and the postpartum period.
- Ability to keep medical records.

List of didactic units:

- Etiology and pathogenesis of preeclampsia and eclampsia.
- Modern diagnostic methods for preeclampsia and eclampsia, volumetric survey of patients.
- Clinic of preeclampsia and eclampsia.
- Classification of preeclampsia and eclampsia.
- Principles of pregnant women with early gestosis, preeclampsia and eclampsia. Emergency care.
- Modern principles of prevention preeclampsia and eclampsia, medical rehabilitation patients.
- Diagnose early gestosis, preeclampsia and eclampsia.

- Appoint the necessary volume of surveys of pregnant women, women in labor and parturient women with preeclampsia.
- Prescribe treatment for patients.
- Prevention of preeclampsia and eclampsia of pregnant women.
- Assign measures of medical rehabilitation of patients after preeclampsia.

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

Questions:

- measurement of pulse and blood pressure
- measurement of average blood pressure
- auscultation of the fetus.
- assessment of laboratory parameters
- assessment of the weight gain of a pregnant woman
- identification and assessment of edema
- treatment of early gestosis
- treatment of preeclampsia
- First aid for an attack of eclampsia.

Test tasks

Direction: For each of the multiple-choice questions select the lettered answer that is the one best response in each case.

1. A 19-year-old woman at 36 weeks' gestation with a BP of 150/100, 2+ edema, and 2+ proteinuria with no other symptoms. Which of the following is the best diagnosis?

A. *severe preeclampsia

B. mild preeclampsia

C. chronic hypertensive disease

D. eclampsia

E. chronic renal disease

2. A 19-year-old woman without prenatal care (gravida 1, para 0) in the third trimester of pregnancy arrives in the emergency department. She has presented because of headache and visual change. While being examined, she had a convulsion. You should do which of the following while waiting for the magnesium sulfate bolus?

A. give intravenous (IV) phenytoin

B. obtain a chest film

C. *protect the patient from self-harm

D. obtain an ultrasound to rule out molar pregnancy

E. prepare to perform an emergency cesarean delivery

3. A 20-year-old primigravida presents at 40 weeks. She has been healthy up to this point. She has a headache and sight disturbances. Her face and hands are swollen, and she cannot wear her rings. Her BP is 168/95 mm Hg, and she has 1+ protein. The fetus has a reassuring monitoring strip. Which of the following is the best treatment for her preeclampsia?

A. modified bed rest

B. *delivery either by cesarean or by vaginal

C. magnesium sulfate

D. an antihypertensive drug that does not affect uterine blood flow

E. gentle diuresis, with careful monitoring of intake and output

4. A 23-year-old woman (gravida 1) at about 12 weeks' gestation develops persistent nausea and vomiting that progresses from an occasional episode to a constant retching. She has no fever or diarrhea but lost 3 kg in 1 week and appears dehydrated. What is your diagnosis?

A. ptyalism

B. gastroenteritis

C. *hyperemesis gravidarum

D. anorexia nervosa

E. morning sickness

5. A 24-year-old woman (gravida 1, para 0) at 37 weeks' gestation was noted to have a 2500 g weight gain and an increase in blood pressure to 140/95 mm Hg in the past week. She also has 1+ proteinuria. The examination was repeated 4 hours later and the same results were obtained. Which of the following is the best diagnosis?

A. *preeclampsia

B. normal pregnancy

C. eclampsia

D. pregnancy-induced hypertension

E. transient hypertension of pregnancy

6. A 25 y.o. pregnant woman in her 34th week was delivered to the maternity house with complaints of headache, visual disorders, nausea. Objectively: generalized edema, AP-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. Stomach ulcer

B. *Eclampsia

C. Epilepsy

D. Cerebral hemorrhage

E. Cerebral edema

7. A 28-year-old G2P0 at 39 weeks is in early labor. She is 2 cm dilated and 90% effaced, with contractions every 4 to 5 minutes. The fetal heart tones are reassuring. Her nurse steps out for a moment and returns to find her having a seizure. What would your first therapy be aimed at?

A. *giving a 4-g magnesium sulfate bolus

B. reducing edema with diuretics

C. giving hypotensive agents until the blood pressure is 110/70 mm Hg

D. giving 3 g of magnesium every 3 hours

E. prepare for immediate delivery by cesarean section

8. 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. Premature abortion

B. Food poisoning

C. *Moderate vomiting of pregnancy

D. Mild vomiting of pregnancy

E. I degree preeclampsia

9. A 32-year-old G2P1 female presents for routine prenatal visit at 36 weeks' EGA. You note a 3,5-kg weight gain in the last 2 weeks? Which of the following should be your first priority?

A. markedly restrict her diet

B. encourage vigorous exercise

C. place her on bed rest

D. *assess for signs and symptoms of preeclampsia

E. give the patient diuretics

10. A 35-year-old woman (gravida 5, para 4) now at 32 weeks' gestation with a BP of 180/120, no proteinuria or edema, but retinal exudates and hemorrhage, as well as a history of hypertension for 8 years. Which of the following is the best diagnosis?

A. *chronic hypertensive disease

B. mild preeclampsia

C. severe preeclampsia

D. eclampsia

E. chronic renal disease

11. A multigravida on the 38th week of her pregnancy complains of increased BP up to 140/90 mm Hg, edema of the shins for 2 weeks. In the last month she gained 3.5 kg of weight. Urine analysis: protein - 0.033 g/L. Make the diagnosis:

A. Gestational proteinuria
B. Pregnancy edema
C. *Mild preeclampsia
D. Severe preeclampsia
E. Gestational hypertension

12. A patient and her husband are extremely anxious about your suggestion that she be given magnesium sulfate for seizure prophylaxis. In assuring her about the safety of the drug, you can emphasize which of the following?

A. *The drug is rapidly excreted via the kidney
B. It is a mild smooth-muscle constrictor and thus safe for the infusion
C. The drug has a narrow margin of safety so that we start off with a lower dose in preeclamptics, and administer it by an IV pump
D. As a central nervous system (CNS) stimulant it should not deprive her of the awareness of her delivery, unlike barbiturates
E. The drug does not cross the placenta and thus should not affect her fetus/infant

13. A patient develops excessive salivation during pregnancy. What is this called?

A. eructation
B. *ptyalism
C. deglutition
D. pruritus
E. emesis

14. A primagravida with pregnancy of 37-38 weeks complains of headache, nausea, pain in epigastrium. Objectively: the skin is cyanotic. Face is hydropic, there is short fibrillar twitching of blepharons, muscles of the face and the inferior extremities.

The stare is fixed. BP - 200/110 mm Hg; pulse rate is 102 bpm, intense. Respiration rate is 32/min. Proteinuria +++. What medication should be administered?

A. Dibazolum (Bendazole hydrochloride) of 1% - 6,0 ml

B. Papaverine hydrochloride of 2% - 4,0 ml

C. Hexenalum of 1% - 2,0 ml

D. Pentaminum of 5% - 4,0 ml

E. *Magnesium sulfate 25% - 16,0 ml IV

Typical situations of tasks:

1. 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. Estimateded fetal weight is 1500 g. There is face and shin edema. Urine potein is 0,66 o/oo. Cervix is unripe, 2 points according Bishop's scale. An intensive therapy has been started. What is the correct tactics of this case management?

Answer: Delivery by cesarean section

2. A 17-year-old G2P0 woman with no prenatal care at 29 weeks' gestation presents with painful contractions and pressure. Her cervix is 2 cm dilated, 60% effaced, and breech at –2 station. There is no evidence of ruptured membranes. Her contractions are every 3 minutes. FHT are 150 with accelerations. Maternal vital signs are temperature 36.8 degrees, pulse 96, BP 110/72. What should you do?

Answer: begin tocolytic agents

3. In Primagravida, at 15-16 weeks of gestation, was determined that level of α-fetoprotein in serum significantly higher than normal. Pregnancy occurred against the backdrop klostylbehitom stimulate ovulation. When ultrasound revealed twins. How should treat elevated levels ^{z} -fetoprotein in this case?

Answer: Symptom of multiple pregnancy

4. On her first prenatal visit, a 17-year-old single woman (gravida 1, para 0), 32 weeks by good dates, is found to have vital signs as follows: BP-135/85; Ps-84; T-36,6°C; and RR-20. She also has ankle and hand edema and a uterine fundus measuring 42 cm with breech concordant twins on ultrasound. She has normal pelvic measurements and the cervix is closed and soft, with the presenting part at station −1. Her UA revealed no WBCs or bacteria with 2+ protein. Her hematocrit is 38, and her WBC count is 9800. The next step in care of this patient should include which of the following?

Answer: hospitalization with bed rest and frequent vital signs

5. Patients with severe preeclampsia, when compared with pregnant women without preeclampsia, will have a decrease in which of the following?

Answer: plasma volume

III. 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:

Student groups are divided into 3 subgroups of 3-4 people each. They work in the classroom, maternity ward, maternity ward, neonatal unit with pregnant women and newborns.

Task:

- Subgroup I - for the assessment of laboratory parameters

- Subgroup II - for measuring heart rate and blood pressure

- Subgroup III - to assess the responses of subgroups I and II and make adjustments.

Atypical situations of tasks:

1. The 30 years-old pregnant arrived to the maternity hospital in 37 week of gestation term, longitudinal lie with head presentation of the fetus. She has complaints about headache, nausea, vomiting, and pains in the epigastric region. Objectively: disturbances of vision are present. Arterial blood pressure 180/110 mm Hg. Urinalysis: cloudy urine, proteinuria– 1.66 g/l. The tonus of uterus is normal. Fetal heart sounds – 140 beat/min, rhythmic. Respiration rate is 32 breaths/min. Diagnosis and tactics in this clinical case?

Answer: I pregnancy, 37 week of gestation term. Longitudinal lie with head presentation of the fetus. Severe preeclampsia.

Careful observation of the dynamic:

• Blood pressure control - hourly;

• Urine test - every 4 hours;

• Control diuresis (urinary catheterization catheter Thales);

• Hemoglobin, hematocrit, platelet count, and liver function tests, creatinine plasma - daily;

• Monitoring of fetus

Intravenous injection of Magnesium sulfate 25% 10,0 +NaCl 0,9% 200,0; nifedipine 5-10 mg sublingually, labetalol 10 mg intravenously. Cesarean section.

2. A 38 years old pregnant woman arrived to the maternity hospital in 33 week of gestation term, longitudinal lie with head presentation of the fetus. She is with the diagnosis of infectious hepatitis and pancreatitis, which she suffered 2 years ago. What is the most probable complication of her pregnancy?

Answer: I pregnancy, 33 week of gestation term. Longitudinal lie with head presentation of the fetus. Early gestosis or preeclampsia? Risk facts: 38 y.o. pregnant woman, infectious hepatitis, which she suffered 2 years ago, chronic pancreatitis.

3. During investigation of the 25 years-old pregnant lady, in the term of gestation 34 weeks longitudinal lie with head presentation of the fetus, a doctor registered edema of her both legs, Blood Pressure on the right hand 140/90mm Hg , on the left arm 130/90mm Hg, proteinuria– 0,66 g/l , level of blood protein– 56 g/l. State of the fetus is satisfactory. What is probable diagnosis and management?

Answer: I pregnancy, 34 week of gestation term. Longitudinal lie with head presentation of the fetus. Mild Preeclampsia.

4. A 27 years old pregnant woman 36 weeks of gestation was admitted to the obstetric in-patient department. She has previous history of arterial hypertension, now complains of a headache, aching constant local pains in the lower abdomen and bloody discharge from vagina. The main clinical features are blood pressure 180/100 mm Hg and hypertonic uterus. During investigation about 300 ml of dark blood was discharged from vagina. The fetal heartbeats are not heard. According to ultrasound investigation the placenta was located on the front wall of the uterus with transition to the uterine fundus. What is the diagnosis?

Answer: I pregnancy, 36 week of gestation term. Pre-eclampsia and premature placental separation of normally placed placenta

5. 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. What is the most appropriate next step in management?

Answer: I pregnancy, 33 week of gestation term. Longitudinal lie with head presentation of the fetus. Moderate preeclampsia.

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.

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 primagravida with pregnancy of 37-38 weeks complains of headache, nausea, pain in epigastrium. Objective: the skin is cyanotic. Face is hydropic, there is short fibrillar twitching of blepharos, muscles of the face and the inferior extremities. The look is fixed. AP200/110 mm Hg; sphygmus of 92 bpm, intense. Respiration rate is 32/min. Heart activity is rhythmical. Appreciable edemata of the inferior extremities are present. Urine is cloudy. What medication should be administered?

A. Droperidolum of 0,25\% - 2,0 ml

B. Dibazolum of 1\% - 6,0 ml

C. Papaverine hydrochloride of 2\% - 4,0 ml

D. Hexenalum of 1\% - 2,0 ml

E. Pentaminum of 5\% - 4,0 m

5. 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

6. An onset of severe preeclampsia at 16 weeks gestation might be caused by:

A**.** Hydatidiform mole

B. Anencephaly

C. Twin gestation

D. Maternal renal disease

E. Interventricular defect of the fetus

7. 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?

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8. 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?

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B. Mild vomiting of pregnancy

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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

10. A 19-year-old primigravida woman with a body weight of 54,5 kg gave birth at 38 weeks gestation to a full-term live girl after a normal vaginal delivery. The girl's weight was 2180,0 g, body length - 48 cm. It is known from history that the woman has been a smoker for 8 years, and kept smoking during pregnancy. Pregnancy was complicated by moderate vomiting of pregnancy from 9 to 12 weeks pregnant, edema of pregnancy from 32 to 38 weeks. What is the most likely cause of low birth weight?

A. Fetoplacental insufficiency

B. Low weight of the woman

C. Woman's age

D. First trimester preeclampsia

E. Third trimester preeclampsia

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

Early gestosis

- Frequent forms of early gestosis: vomiting of pregnant excessive salivation
- Rare forms of early gestosis: dermatosis gravidarum, tetania gravidarum,chorea gravidarum, osteomalacia gravidarum,acute fatty liver of pregnancy,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 – degrees:

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

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.

HYPERTENSION IN PREGNANCY

Types of hypertension	
Chronic Hypertension	• SBP≥140 or DBP≥90

	• Pre-Pregnancy or < 20 weeks
Gestational Hypertension	• SBP≥140 or DBP≥90 • > 20 weeks • Absence of proteinuria or systemic signs/symptoms
Preeclampsia-Eclampsia	• SBP≥140 or DBP≥90 • Proteinuria with or without signs/symptoms • Presentation of signs/symptoms/lab abnormalities but no proteinuria • Proteinuria not required for diagnosis eclampsia seizure in setting of preeclampsia
Chronic Hypertension & Superimposed Preeclampsia	• Women with chronic essential hypertension develop any of the above maternal organ dysfunctions consistent with PE • Increase in blood pressure per se is not sufficient to diagnose superimposed PE • In the absence of pre-existing proteinuria, new-onset proteinuria in the setting of a rise in blood pressure is sufficient to diagnose superimposed PE

Diagnostic Criteria

Blood Pressure Criteria

- Hypertension – systolic BP > 140 mm hg or diastolic BP > 90 mm hg or both
- On two occasions at least 4 hours apart after 20 weeks gestations with previously normal BP
- Considered ‘mild’ until diastolic BP > 110mm hg or systolic BP ≥160 mm Hg

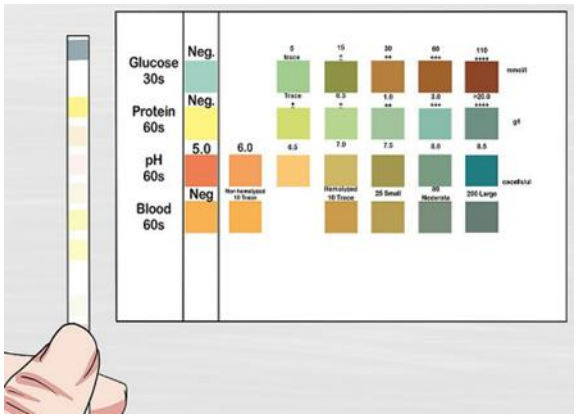
- Severe Hypertension – systolic BP > 160 mm hg or diastolic BP > 110 mm hg or both

Proteinuria Criteria

- 24 hour urine collection >300 mg protein or
- Single voided urine protein/creatinine ratio ≥0.3 mg/dl
- Dipstick reading of 2+ (use only if other quantitative methods not available)

Urine Dipstick Test:

1. Dip the test strip into the urine.
2. Wait approximately 2 minutes for the results.
3. Compare the test squares to the color chart.



Gestational Hypertension

1. Pregnancy >20 wk
2. Sustained HTN
3. No proteinuria

- Gestational hypertension is diagnosed with sustained elevation of BP ≥140/90 mm Hg after 20 weeks of pregnancy without proteinuria. BP returns to normal baseline postpartum.
- No symptoms of preeclampsia are seen, e.g., headache, epigastric pain, visual disturbances. Physical findings are unremarkable for pregnancy. Lab tests are unremarkable for pregnancy. Proteinuria is absent.
- Preeclampsia should always be ruled out.
- Diagnosis is made with sustained elevation of BP >140/90 mm Hg without proteinuria (key finding).

- Management. Conservative outpatient management with close observation since 30% of patients will develop preeclampsia. Appropriate lab testing should be performed to rule out preeclampsia, e.g., urine protein, hemoconcentration assessment. Deliver by 40 weeks.

Preeclampsia

According to the ISSHP, PE is defined as systolic blood pressure at ≥140 mm Hg and / or diastolic blood pressure at ≥90 mm Hg on atleast two occasions measured 4 hours apart in previously normotensive women and is accompanied by one or more of the following new-

onset conditions at or after 20 weeks of gestation:

1. Proteinuria (i.e. ≥30mg/mol protein:creatinine ratio;≥300 mg/24 hour; or ≥2 + dipstick);

2. Evidence of other maternal organ dysfunction, including: acute kidney injury (creatinine ≥90 μmol/L; 1 mg/dL); liver involvement (elevated transaminases, e.g. alanine aminotransferase or aspartate aminotransferase >40 IU/L) with or without right upper quadrant or epigastric abdominal pain; neurological complications (e.g. eclampsia, altered mental status, blindness, stroke, clonus, severe headaches, and persistent visual scotomata); or hematological complications (thrombocytopenia–platelet count <150000/ μL, disseminated intravascular coagulation, hemolysis); or

3. Uteroplacental dysfunction (such as fetal growth restriction, abnormal umbilical artery Doppler waveform analysis, or stillbirth).

Risk Factors for Preeclampsia

High	• History of preeclampsia, especially when accompanied by an adverse outcome • Multifetal gestation • Chronic hypertension • Type 1 or 2 diabetes • Renal disease	Recommend low-dose aspirin if the patient has one or more of these high-risk factors

	• Autoimmune disease (ie, systemic lupus erythematosus, the antiphospholipid syndrome)	
Moderate	• Nulliparity • Obesity (body mass index greater than 30) • Family history of preeclampsia (mother or sister) • Sociodemographic characteristics (African American race, low socioeconomic status) • Age 35 years or older • Personal history factors (eg, low birth weight or small for gestational age, previous adverse pregnancy outcome, more than 10-year pregnancy interval)	Consider low-dose aspirin if the patient has more than one of these moderate-risk factors
Low	• Previous uncomplicated full-term delivery	Do not recommend low-dose aspirin

Pathophysiology

Several mechanisms of disease have been proposed in preeclampsia including the following: chronic uteroplacental ischemia, immune maladaptation, very low-density lipoprotein toxicity, genetic imprinting, increased trophoblast apoptosis or necrosis, and an exaggerated maternal inflammatory response to deported trophoblasts. More recent observations suggest a possible role for imbalances of angiogenic factors in the pathogenesis of preeclampsia. It is possible that a combination of some of these purported mechanisms may be responsible for triggering the clinical spectrum of preeclampsia. For example, there is clinical and experimental evidence suggesting that uteroplacental ischemia leads to increased circulating concentrations of antiangiogenic factors and angiogenic imbalances.

CLINICAL TYPES PREECLAMPSIA

Mild: This includes cases of sustained rise of blood pressure of more than 140/90 mm Hg but less than 160 mm Hg systolic or 110 mm Hg diastolic without significant proteinuria.

Severe:

- A persistent systolic blood pressure of >160 mm Hg or diastolic pressure of >110 mm Hg.
- Protein excretion of >5 gm/24 hr.
- Oliguria (<400 ml/24 hr).
- Platelet count < 100,000 /mm^3.
- HELLP syndrome.
- Cerebral or visual disturbances.
- Persistent severe epigastric pain.
- Retinal hemorrhages, exudates or papilledema.
- Intrauterine growth restriction of the fetus.
- Pulmonary edema.

Diagnostic criteria of preeclampsia/eclampsia severity

Diagnosis	Diastolic blood preasure, mm Hg	Proteinuria, g/day	Other signs
Light preeclampsia or gestational hypertension	90-99	<0,3	–
Moderate preeclampsia	100-109	0,3-5,0	Edema of face, hands Sometimes - headache
Severe preeclampsia	≥110	>5	Generalized edema, significant headache Impaired vision Pain in the epigastrium and / or right upper quadrant Hyperreflexia Oliguria (<500 ml / day) Thrombocytopenia
Eclampsia	≥90	≤0,3	Convulsive attack (one or more)

- **Management.** The only definitive cure is delivery and removal of all fetal-placental tissue. However, delivery may be deferred in preeclampsia without severe features to minimize neonatal complications of prematurity. Management is based on gestational age.
- Conservative management. Before 37 weeks'gestation as long as mother and fetus are stable, mild preeclampsia is managed in the hospital or as outpatient, watching for possible progression to severe preeclampsia. No antihypertensive agents or MgSO4 are used.

- Delivery. At ≥37 weeks' gestation, delivery is indicated with oxytocin induction of labor and continuous infusion of MgSO4 to prevent eclamptic seizures.

Preeclampsia with Severe Features

- Pregnancy >20 wk
- Sustained HTN (>140/90 mm Hg)
- Headache or epigastric pain or visual changes
- DIC or ↑ liver enzymes or pulmonary edema

Diagnosis is made in the presence of (at least) mild elevation of BP and mild proteinuria plus any one of the following:

- Sustained BP elevation of ≥160/110
- Evidence of maternal jeopardy:
    - headache, epigastric pain, visual changes,
    - thrombocytopenia (platelet count <100,000/mL),
    - Doubling of liver transaminases,
    - Pulmonary edema,
    - serum creatinine >1.1 mg/dL, or doubling of serum creatinine
- Possible edema

Preeclampsia can be subclassified into:

1. Early-onset PE (with delivery at <34 +0 weeks of gestation);
2. Preterm PE (with delivery at <37 +0 weeks of gestation);
3. Late-onset PE (with delivery at ≥34 +0 weeks of gestation);
4. Term PE (with delivery at ≥37 +0 weeks of gestation).

When to Treat:

- Urgently treat any of the following in pregnancy or postpartum period:
- BP ≥ 160/110 mm Hg persisting for 15 minutes
- Systolic pressure ≥ 160 mm Hg persisting for 15 minutes

- systolic BP a predictor of maternal morbidity/mortality
- Severe diastolic hypertension: ≥ 110 mm Hg persisting for 15 minutes

First Line Therapy: Nifedipine, Hydralazine, Labetalol

Drug	Dose	Comments	Onset of Action
Labetalol	10–20 mg IV, then 20–80 mg every 10–30 minutes to a maximum cumulative dosage of 300 mg; or constant infusion 1–2 mg/min IV	Tachycardia is less common with fewer adverse effects. Avoid in women with asthma, preexisting myocardial disease, decompensated cardiac function, and heart block and bradycardia.	1–2 minutes
Hydralazine	5 mg IV or IM, then 5–10 mg IV every 20–40 minutes to a maximum cumulative dosage of 20 mg; or constant infusion of 0.5–10 mg/hr	Higher or frequent dosage associated with maternal hypotension, headaches, and abnormal fetal heart rate tracings; may be more common than other agents.	10–20 minutes
Nifedipine	10–20 mg orally, repeat in 20 minutes if needed; then 10–20 mg every 2–6 hours; maximum daily dose is	May observe reflex tachycardia and headaches	5–10 minutes

	180 mg		

Aggressive prompt delivery for chronic HTN with superimposed preeclampsia at any gestational age.

- Administer MgSO4 to prevent convulsions. Continue MgSO4 for 24 hours after delivery.
- Keep diastolic BP between 90 and 100 mm Hg with IV hydralazine and/or labetalol.
- Attempt vaginal delivery with oxytocin infusion if mother and fetus are stable.

Magnesium Sulfate:

- Is not a hypotensive agent
- Works as a centrally acting anticonvulsant
- Also blocks neuromuscular conduction
- Serum levels: 6-8 mg/dL

Toxicity:

- Respiratory rate < 12
- Altered sensorium
- Urine output < 25-30 cc/hour
- Antidote: 10 ml of 10% solution of calcium gluconate 1 v over 3 minutes

Eclampsia

Eclampsia is the convulsive manifestation of the hypertensive disorders of pregnancy and is among the more severe manifestations of the disease. Eclampsia is defined by new-onset tonic-clonic, focal, or multifocal seizures in the absence of other causative conditions such as epilepsy, cerebral arterial ischemia and infarction, intracranial hemorrhage, or drug use. Some of these alternative diagnoses may be more likely in cases in which new-onset seizures occur after 48 – 72 hours post-partum or when seizures occur during administration of magnesium sulfate.

Eclampsia is a significant cause of maternal death, particularly in low-resource settings. Seizures may lead to severe maternal hypoxia, trauma, and aspiration pneumonia. Although residual neurologic damage is rare, some women may have short-term and long-term consequences such as impaired memory and cognitive function, especially after recurrent seizures or uncorrected severe hypertension leading to cytotoxic edema or infarction. Permanent white matter loss has been documented on magnetic resonance imaging (MRI) after eclampsia in up to one fourth of women, however, this does not translate into significant neurologic deficits.

Treatment of Eclampsia:

- Few people die of seizures
- Protect patient
- Avoid insertion of airways and padded tongue blades
- IV access
- MgSO4 4-6 bolus, if not effective, give another 2 g

HELLP Syndrome

- Hemolysis
- ↑ liver enzymes
- ↓ platelets

Is a variant of severe preeclampsia

Platelets < 100,000

LFT's - 2 x normal

May occur against a background of what appears to be mild disease

Conservative Management:

- Controversial
- Steroids
- Requires tertiary care
- Must have stable labs and reassuring fetal status
- May use antihypertensives

Duration of clinical supervision after undergoing moderate or severe preeclampsia or eclampsia - 1 year.

Prevention of preeclampsia and eclampsia.

- FIGO adopts and supports the Fetal Medicine Foundation position that all pregnant women should be screened for pre-term pre-eclampsia by the first-trimester combined test with maternal risk factors, mean arterial pressure, uterine artery pulsatility index, and placental growth factor as a one-step procedure.
- FIGO adopts and supports the Fetal Medicine Foundation position that in high-risk women, defined by the first-trimester combined test, aspirin ~150 mg/night should be commenced at 11–14 +6 weeks of gestation until either 36 weeks of gestation, when delivery occurs, or when pre-eclampsia is diagnosed.

IV. SUMMING UP

Current control: oral examination, testing, assessment of practical skills, solving situational clinical problems, assessment of activity in the classroom.

Criteria for current assessment on the practical lesson:

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.

IV. METHODICAL SUPPORT MATERIALS

1. Zaporozhan V.M., Mishchenko V.P. Obstetrics and gynaecology in 2 Books : Book 1 : Obstetrics, 2007. – 373 pp.

2. Collins S, Arulkumaran S, Hayes K. Oxford Handbook of Obstetrics and Gynaecology, 2013.-p. 326.

3. Obstetrics by Ten Teachers (20th ed) Louise C. Kenny, Jenny E. Myers. – CRC Press. – 2017. – PP. 688.

4. Kaplan. USMLE Step 2 CK Lecture Notes: Obstetrics and Gynecology. 2019.-pp. 247-269.

5. National Institute for Health and Care Excellence (2019) Hypertension in pregnancy diagnosis and management. NICE guidelines NG133, June 25.

6. Poon C. et al. The International Federation of Gynecology and Obstetrics (FIGO) initiative on pre- eclampsia: A pragmatic guide for first- trimester screening and prevention. 2019.-p. 33.

7. Gestational hypertension and preeclampsia. ACOG Practice Bulletin No. 222. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020;135:e237 – 60.

INTERNET SOURCES:

- https://www.cochrane.org/
- https://www.ebcog.org/
- https://www.acog.org/
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- https://online.lexi.com/
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- https://www.npwh.org/