Ministry of Public Heals Service of Ukraine  
«Ukrainian Medical Stomatological Academy»

«APPROVING»
on the sitting of chair of obstetrics and  
gynecology №1 of UMSA  
(*protocol №1 from 28.08.2020*)

Acting manager of chair of obstetric and  
gynecology №1  
professor A.M. Gromova

METHODOICAL POINTING  
for the independent work of students for preparation to practical lesson

<table>
<thead>
<tr>
<th>Educational subject</th>
<th>Obstetric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modul №2</td>
<td>2</td>
</tr>
<tr>
<td>Subject of lesson</td>
<td>Early gestosis. Classification, clinic, diagnostic, treatment</td>
</tr>
<tr>
<td>Course</td>
<td>V</td>
</tr>
<tr>
<td>faculty</td>
<td>Forcing students training faculty (medical)</td>
</tr>
</tbody>
</table>

Poltava – 2020
Early gestosis. Classification, clinic, diagnostic, treatment

1. Relevance of the topic: Early gestosis develops in the early stages of embryogenesis, often contributing to other forms of obstetrics (hypotension, anemia of pregnant women, the threat of abortion, late preeclampsia) and perinatal (hypoxia, defects in fetal development) pathology. Early gestosis adversely affect the formation of conditions necessary for normal adaptation of the organism pregnant to the presence of a fertilized egg in the uterus.

2. Specific goals:

- To analyze physiology of pregnancy
- To give the definition of "early gestosis"
- To explain modern views on the etiology and pathogenesis of early gestosis
- To classify the early gestosis
- To interpret basic principles and methods of treatment of early gestosis

3. The basic level of expertise, skills, abilities, required for learning the topic (interdisciplinary integration)

<table>
<thead>
<tr>
<th>Names of previous disciplines</th>
<th>Skills acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Biology</td>
<td>Describe the formation of changes in woman's body during physiological pregnancy.</td>
</tr>
<tr>
<td>2. Normal anatomy</td>
<td>Describe the topography of the pelvic organs.</td>
</tr>
</tbody>
</table>

4. Tasks for independent work during preparation to the lesson and in the lesson.

4.1. A list of basic terms, parameters, characteristics that a student must learn during preparation to the lesson.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gestosis</td>
<td>Gestosis (toxicosis) is a condition that occurs in pregnant women in connection with the growth and development of the fetus in violation of the process of adaptation of the mother's body. There is a fundamental difference between early and late gestosis.</td>
</tr>
</tbody>
</table>
2. Early gestosis is a term that is used only in the lexicon of doctors in the CIS countries, in Western medicine they are called "unpleasant symptoms during pregnancy" or "small complications of pregnancy." Early gestosis occurs in the early stages of embryonic development and often causes other forms of pregnancy pathology.

3. Salivation (ptyalismus) hypersalivation is observed during vomiting, and sometimes is an independent manifestation of toxicosis.

4.2. Theoretical questions for the lesson.

1. What changes are taking place in all systems of a pregnant woman?
2. What are the signs of pregnancy?
3. Which should be recommended for decreasing of hypersalivation?
4. What is the best management of pregnancy in the case of acute fatty liver?

4.3. Practical activities (tasks) to be performed on the lesson

1. Identify and evaluate risk factors for early gestosis.
2. To diagnose early gestosis.
3. Objectively assess the severity of gestosis.
4. To make the plan of individual treatment of pregnant women with early gestosis.

**Topic content:**

Gestosis is a syndrome defined as violated adaptation of a woman to pregnancy. Gestosis arises only in connection with pregnancy, is etiologically linked to fetal egg development, is characterized by various symptoms, complicates the course of pregnancy and usually disappear right after or in some time after the end of pregnancy.

Many theories have been offered to explain gestosis reasons: toxemic, allergic, corticovisceral, endocrine, neurogenic, psychogenic, immune, genetic and others, around 40 theories.
For instance, the genetic theory developed after it was found that in women having family history of preeclampsia or eclampsia these complications are met 4 tomes more often. Besides, the genes transferring inclination to preeclampsia (mitochondrial genes) were identified.

The immune theory represents the fetoplacental complex as an allograft and preeclampsia development is a reaction akin to allograft rejection reaction.

Multiple theories of preeclampsia pathogenesis suggest that none of them describes it completely.

The clinical presentation of gestosis is conditioned by activation or dysfunction of endotheliocytes of vessels (first of all of spiral arterioles) and is accompanied by thrombocytes activation. In the plasma there is considerably increased concentration of the markers of the affection of endotheliocytes (endothelin, fibronectin), activation of thrombocytes (thromboxane-prostacyclin, cytoadherence molecules, von Willebrand factor), thrombocytes degranulation products. An important role in gestoses origin belongs to:

1) insufficiency of the uterine spiral arterioles, which causes placental circulation violation;

2) vessels’ endothelium dysfunction connected with autoimmune violations caused by pregnancy.

Risk factors of gestoses onset include:

1. Extragenital pathology:
   - arterial hypertension before pregnancy;
   - renal dysfunction;
   - metabolic disorder (obesity);
   - cardiovascular system diseases (diabetic angiopathy, autoimmune vasculitis);
   - sickleemia.

2. Obstetric-gynecologic risk factors:
   - conditions accompanied by the formation of the placenta of big size (multiple pregnancy, diabetes mellitus, gestational edema);
- presence of hypertonic disorders in hereditary anamnesis;
- presence of preeclampsia during previous pregnancy;
- the age of the pregnant (less than 19, more than 30 years);
- isosensitization by Rh-factor and ABO system.

3. Social and living factors:
- bad habits;
- occupational hazards;
- unbalanced diet.

The knowledge of the risk factors of preeclampsia development and their detection allow timely formation of risk groups concerning preeclampsia onset.

There is no single gestoses classification. The MPH of Ukraine and the Association of Obstetricians-Gynecologists of Ukraine recommend the classification of early and late gestoses.

**Early Gestoses Classification**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vomiting of pregnant (emesis gravidarum):</td>
<td>Vomiting connected to pregnancy</td>
</tr>
<tr>
<td>- mild vomiting</td>
<td>- vomiting up to 3–5 times a day on an empty stomach or after meals - reduced appetite</td>
</tr>
<tr>
<td>- moderate vomiting</td>
<td>- vomiting up to 10 times a day irrespective of food intake - weight loss, weakness, apathy - electrolyte imbalance</td>
</tr>
<tr>
<td>- severe vomiting (hyperemesis gravidarum)</td>
<td>- vomiting more than 10 times a day, no food is hold - weight loss - low grade fever - icteric discolor of the skin and</td>
</tr>
</tbody>
</table>
In many countries these conditions are viewed as pregnancy complications or unpleasant symptoms at pregnancy. We consider vomiting and salivation to be early manifestations of organism dysadaptation to pregnancy and therefore view these conditions as gestoses, early by the term of onset.

The diagnostics of the severity of vomiting of pregnant is based on clinical and laboratory data. The latter include: hematocrit, the quantity of protein and its fractions, blood electrolytes, bilirubin, urea, common urine analysis, diuresis.

Moderate and severe vomiting should be treated in the in-patient department. The main principles of vomiting treatment are:

1. Normalization of the violations of correlation between the excitative and inhibitory processes in the CNS – psychotherapy, electrical sleep, acupuncture, laser reflexotherapy, sedatives and/or tranquilizers (diazepam, seduxen).


3. Water-electrolytic balance correction, metabolism correction – Ringer’s, Dissol, Trisol solutions, physiologic saline. The solutions of hydroxyethylstarch – Refortan, Stabizol – are also used.
Unfavourable prognostic symptoms are also icteric discolor of the skin, body temperature more than 38° C, tachycardia over 120 bpm, albinuria, comatose state, delusion.

Indications to abortion are disease progression against the background of treatment.

Usually early gestoses of pregnant stop during the 13th–14th week of pregnancy.

**RARE FORMS OF GESTOSES OF PREGNANCY**

**Hypersalivation (ptialismus)**. Hypersalivation is observed in vomiting, and sometimes is an independent manifestation of gestosis. The amount of secreted saliva can reach 1,0 l per day. Salivation does not affect the body, but suppresses the patients’ psyche, causing maceration of skin and labial mucosa. Treatment similar to vomiting is carried out in salivation. Sometimes, in order to reduce the secretion of the salivary glands intramuscular administration of 1,0 ml 0,1% atropine solution is prescribed. Rinsing the mouth with the tincture of sage, chamomile and other agents with astringent properties will be also appropriate. No termination of pregnancy is required in this pathology.

**Dermatoses gravidarum** is a group of diseases that occur in connection with pregnancy and disappear after its termination. Skin diseases in pregnancy depend on functional imbalance between the cortex and the subcortex, increased excitability of the vegetative nervous system, accompanied by disturbances of skin innervation, metabolic, hemomicrocirculatory changes in it. Dermatoses gravidarum are manifested in the form of skin itching, and rarely in the form of eczema, erythema, and herpetic rash. Treatment of dermatoses gravidarum is conducted similar to treatment of vomiting of pregnancy (the appropriate regimen, meal with limited content of protein and fats, medications that regulate the function of the nervous system and metabolism).

**Jaundice of pregnancy. (cholestatic hepatosis of pregnancy)** can occur at different stages of pregnancy, but most often occurs in the third trimester. The
pathogenesis of this disease remains poorly understood. Inhibitory influence of progesterone on the biliary excretion function of cholangioles, rise of cholesterol production, lowering the tone of the bile-excreting system, the increase of the bile viscosity is crucial. The onset of jaundice is preceded by a widespread intense itching of the skin. The general state of the sufferer in cholestatic hepatosis of pregnancy is not significantly changed. Moderate leukocytosis, neutrophilia, increased ESR is noted during the laboratory examination. The content of blood bilirubin increases (up to 90 mmol/L) and after childbirth is quickly resolved. The level of alkaline phosphatase also increases. Liver enzymes ALT and AST are not increased, that is rather specific sign for jaundice of pregnancy. This is due to the fact that no signs of necrosis of the liver parenchyma in jaundice of pregnancy are found.

Differential diagnosis should be made with lesions of the liver and bile ducts under the influence of mechanical, metabolic or infectious factors. Jaundice can be possibly occurred as a result of apparent intoxication of the body with the heavy forms of early and late gestosis.

Cholestatic hepatosis is treated by the prescription of a balanced diet (diet No. 5) and the use of medications that eliminate the itching of the skin. For this purpose, Nerobol 5-10 mg, Cholestyramine 12-15 mg daily is prescribed. Antihistamine drugs, Phenobarbital are indicated. In some cases, termination of pregnancy is required due to progression of the disease.

**Acute fatty liver of pregnancy**– one of the detrimental forms of gestosis, which is more common to occur in late pregnancy (33-40 weeks) and is characterized by an extremely acute onset and high mortality. Morphologically it is revealed by the pronounced fatty degeneration of hepatocytes in the absence of signs of their necrosis. Two stages in the clinical course of fatty hepatosis are distinguished: pre-icteritous, which is accompanied by weakness, nausea, severe acid indigestion, itching of skin; icteritous, which is characterized by the increasing symptoms of liver failure, intoxication, evolving DIC-syndrome, often resulted in
death of the fetus. Treatment requires immediate termination of pregnancy, disintoxication therapy, administration of protein and lipotropic agents.

**Chorea gravidarum** (tetania) arises in connection with the calcium metabolism disorder, caused by hypofunction of parathyroid glands. Clinically it manifests by spasmodic convulsive reflex of muscles of upper and lower limbs, sometimes muscles of the face, rarely, throat or stomach ones. This form is more commonly occur in women, suffering from rheumatism. Treatment of tetania is conducted in a hospital, together with the general practitioner, by assigning medical and security regimen, psychotherapy, medical electrosleep, sedative drugs, and medications that normalize calcium metabolism (D, E vitamins, calcium gluconate), Parathyreoidinum to improve the function of the parathyroid gland.

**OSTEOMALACIA** is found extremely rarely and is caused by the bones decalcification and their softening. Bones of the pelvis and spine are affected most frequently, accompanied by painfulness and deformations.

Osteomalacia is treated by the normalization of phosphorus-calcium metabolism, similar to the therapy of chorea gravidarum.

**Self-control materials.**

A. Assignments for self-control.

1. All of the below are the main forms of gestosis in early terms of pregnancy EXCEPT:
   A. severe anemia
   B. hypersalivation
   C. mild vomiting
   D. moderate vomiting
   E. severe vomiting

2. All of the below belong to rare forms of gestosis during pregnancy EXCEPT:
   A. hyperemesis gravidarum
   B. acute fatty liver
   C. dermatosis of pregnancy
D. tetania of pregnancy  
E. osteomalacia of pregnancy

3. How many times a day the patient with mild vomiting complaints of vomiting?
   A. 2-4 times a day  
   B. 4-6 times a day  
   C. 6-8 times in 3 days  
   D. 8-10 times a day  
   E. every 12 hours

4. How many times a day the patient with moderate vomiting complaints of vomiting?
   A. 8-10 times a day  
   B. 2-4 times a day  
   C. 4-6 times a day  
   D. 6-8 times in 3 days  
   E. more than 10 times a day

5. How many times a day the patient with severe vomiting complaints of vomiting?
   A. more than 10 times a day  
   B. 2-4 times a day  
   C. 4-6 times a day  
   D. 6-8 times in 3 days  
   E. 8-10 times a day

6. All of the below are the main signs of mild vomiting EXCEPT:
   A. edema  
   B. tachycardia  
   C. normal diuresis  
   D. normal blood pressure  
   E. general weakness

7. All of the below are the main signs of moderate vomiting EXCEPT:
   A. normal diuresis  
   B. tachycardia  
   C. increasing of the temperature
D. acetonuria
E. weight loss

8. All of the below are the main signs of severe vomiting EXCEPT:
   A. bradycardia
   B. increasing of the temperature
   C. decreasing of diuresis
   D. ketonuria
   E. weight loss

9. Which form of early gestosis of pregnancy is called as hyperemesis gravidarum?
   A. severe vomiting
   B. hypersalivation
   C. mild vomiting
   D. severe anemia
   E. moderate vomiting

10. With all of the above diseases should you differentiate hyperemesis gravidarum EXCEPT?
    A. bronchial asthma
    B. gastroenteritis
    C. hepatitis
    D. fatty liver of pregnancy
    E. peptic ulcer

B. Tasks for self-control

1. 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 37.2 °C. Diuresis is low. USI shows 5-6 weeks of pregnancy. What is the most likely diagnosis?

2. An 18-year-old G1 at 8 weeks gestation complains of nausea and vomiting over the past week occurring on a daily basis. Nausea and emesis are a common symptom in early pregnancy. Which symptoms would indicate a more serious diagnosis of hyperemesis gravidarum?
Literature.

Main:


Additional:


On-line resources

UMSA Academy website http://www.umsa.edu.ua/
Website of the Department of Obstetrics and Gynecology № 1 http://www.umsa.edu.ua/kafhome/kaf_akushgenikology_1/kaf_akushginecology.html
Videos UMSA library website https://bibilumsa.blogspot.com/

Methodical guidelines have been drawn up by CMedS As. Professor Krutikova E. I.

signature