MINISTRY OF HEALTH OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Department of Obstetrics and Gynecology

APPROVED

Vice-rector for scientific and pedagogical work

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METHODOLOGICAL RECOMMENDATIONS FOR LECTURES ON THE ACADEMIC DISCIPLINE "OBSTETRICS AND GYNECOLOGY"

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LECTURE №1

TOPIC: "PHYSIOLOGY OF PREGNANCY AND CHILDBIRTH"

Objective: The lecture material is aimed at familiarising higher education students with the impact of additional processes on the woman's body during pregnancy. Provision and possibilities for the development of the fetal egg and the possibility of further prospects when significant changes occur in the development of the embryo and fetus in the mother's body.

The knowledge and mastery of this lecture will contribute to the professional thinking of future professionals who, under any circumstances, must provide assistance to pregnant women.

Basic concepts: Physiological changes in a woman's body during pregnancy. Hygiene and nutrition of pregnant women. Methods of examination of a pregnant woman: diagnosis of early and late pregnancy. Topography of the fetus in the uterus. Management of physiological pregnancy. Pregravid preparation.

Precursors of labour, preliminary period. Determination of the onset of labour. Biomechanisms of childbirth in the anterior view of occipital presentation. Clinical course of labour. Management of labour. Assessment of the newborn on the Apgar scale. Primary toilet of the newborn, observance of the heat chain.

Plan and organisational structure of the lecture:

Obstetric terminology.

Physiology of pregnancy.

Implantation, processes of organogenesis.

Changes in organs and systems during pregnancy.

Perinatal protection of the fetus.

Antenatal period.

General material and methodological support for the lecture:

Professional algorithms, structural and logical diagrams, tables, models, videos, results of laboratory and instrumental studies, situational tasks, patients, medical histories.

Content of the lecture:

Obstetric terminology

Pregnancy. During this period, the body of a pregnant woman undergoes significant physiological and hormonal changes that allow to ensure the proper development of the fetus, as well as to prepare for the upcoming childbirth and feeding.

Firstly, all of a woman's organs and systems are subject to increased stress. If the expectant mother is healthy, the body can easily cope with pregnancy, but in case of any abnormalities, the risk of exacerbation of chronic diseases and the likelihood of complications increases. To prevent these disorders, a pregnant woman should be regularly observed not only by a gynecologist, but also by a general practitioner, and, if necessary, visit more narrow specialists.

Secondly, during pregnancy, new structures are formed in a woman's body - the placenta, membranes, umbilical cord, amniotic fluid - that ensure the vital activity of the fetus and its relationship with the mother. The condition of all these structures is very important, so it is regularly assessed by a doctor, primarily with the help of auxiliary diagnostic methods.

Thirdly, during pregnancy, blood, urine, and other data change. Therefore, you should not panic if the test results differ significantly from the usual "norms". Many changes are quite natural and correspond to the "norms" for pregnant women. A competent and attentive specialist will be able to correctly interpret the tests and distinguish between completely harmless fluctuations and serious deviations that require additional intervention.

Changes in the body of a healthy woman during pregnancy

Pregnancy is a physiological process that lasts 280 days from the day of conception. During this period, changes in all organs and systems occur to ensure the normal functioning of the embryo, growth and development of the fetus, which are adaptive and adaptive in nature. An important role in this process is played by the newly formed functional biosystem "**mother - placenta - fetus".**

The functioning of the mother-placenta-fetus biosystem is understood as the interaction of two organisms connected through extraembryonic structures, which is aimed at the growth and development of the fetus. From the moment of fertilisation, the mother's body receives information that is perceived by the relevant organs and systems. The main link between the mother and fetus during fetogenesis is the placenta, which is of both maternal and fetal origin. While in the early stages of embryogenesis, the mother and embryo can exist independently of the placenta, the placenta cannot exist outside the mother-fetus system. From the point of view of the systemic approach, the maternal body is an external environment for the fetus, and its changes can significantly affect its development.

Development of the embryo. Within 6-7 days after fertilisation, the zygote moves through the fallopian tube into the uterus and begins to divide to form blastomeres, which are much smaller than the mother cell, so the embryo at the stage of division is slightly larger than its size. The embryo at this stage is called a morula. The embryoblast forms the tissues of the embryo. Around the circumference of the morula are light and small cells - trophoblast, which provides implantation and nutrition for the embryo. The morula gradually develops into a blastocyst when fluid appears between the embryoblast and trophoblast. Once in the uterus, the blastocyst enters the functional layer of the endometrium. Within 40 hours, the fetus is completely immersed in the mucous membrane and the defect overgrows. The mucosa forms the primary membrane of the placenta. The trophoblast forms a villous membrane, or chorion, whose villi go deep into the functional layer of the endometrium. The chorionic villi gradually grow into the vessels of the embryo, which are used for metabolism. The embryo is directly surrounded by a water layer - the amnion.

Subsequently, from the 3rd week of pregnancy, **the placentation stage** begins, which ends with the establishment of fetal-placental circulation at the 13th week. The bulk of the placenta is made up of chorionic villi. They are freely washed by the mother's blood, and through their walls, nutrients and oxygen are diffused into the fetal circulatory system. The placenta is a powerful endocrine gland and releases

hormones and biologically active substances into the mother's bloodstream that contribute to the normal course of pregnancy. The placenta is a component of the fetus' immunobiological defense. However, this barrier is permeable to a number of toxic substances - alcohol, drugs, nicotine, heavy metal salts, some medicines, rubella viruses, etc.

Fetal development.

After implantation is completed, the fetus begins to lay down the main organs and systems.

Central nervous system.

During pregnancy, there is a change in the reactivity of many centres of the nervous system, which provide reactions of stable preservation of temporary homeostasis constants. After blastocyte nidation into the uterine mucosa from its receptor field and structural elements, the impulse flow is effectively transmitted through chemo-barro-mechanical and osmoreceptors to the central nervous system, where the information is analyzed, transformed and a source of increased excitability is formed in the cerebral cortex. This process in pregnant women is manifested by a decrease in attention, fatigue, imbalance and a predominance of thoughts related to pregnancy and the birth of a baby. Against the background of reduced cortical excitability, the activity of the subcortex, reticular formation of the brainstem, spinal cord, and uterine receptor apparatus increases dramatically, resulting in the formation of the "pregnancy dominant", which is a genetically programmed temporary integrated system for regulating all types of hemostasis.

Cardiovascular system

From the moment of implantation of the blastocyst, the CVS is under increased stress due to the following reasons

- formation of a new blood circulation circle;
- increase in blood mass and formation of an additional vascular wall in the uterus and other organs and tissues;
- fluid retention in the body under the influence of estrogen and progesterone of placental origin;

- an increase in the body weight of the pregnant woman in general;

- change in the position of the heart axis, starting from the second trimester, under the influence of the pregnant uterus.

The cardiovascular system of pregnant women experiences an increased load due to the formation of the uteroplacental circulation, an increase in blood weight, due to the activation of the angiotensin-aldosterone system and the action of placental estrogens and progesterone, which leads to an increase in circulating blood volume by 40 - 50% (3500 - 5000 ml).

The increase in BCC occurs mainly due to an increase in plasma volume by 35-47%, significantly outpacing the increase in red blood cell volume by 18-25%. The resulting physiological hemodilution reduces blood viscosity, which improves microcirculation in the uteroplacental region and vital organs of the pregnant woman. Hypervolemia increases most intensively in the first and second trimesters, reaching its maximum value at 29-36 weeks of pregnancy, which leads to a decrease in hematocrit by 35-47%. The concentration of hemoglobin in the blood decreases from 13.5 - 14.0 g/l to 11.0 - 12.0 g/l.

In physiologically healthy women during pregnancy, peripheral vascular resistance decreases by 20 - 30%, but due to this, there is no significant decrease in blood pressure. The decrease in peripheral vascular resistance is due to the functioning of a "new" uteroplacental circulation with low resistance and the vasodilating effect of placental estrogen and progesterone. Systemic blood pressure by 25-28 weeks of pregnancy tends to decrease by 5-15 mm Hg.

Respiratory system

During pregnancy, the respiratory system is in a state of functional stress, under the influence of the pregnant uterus with the displacement of the diaphragm dome upwards, which leads to lung compression and alveolar collapse and an increase in oxygen demand at the end of pregnancy by almost 30-40%, in childbirth up to 150-200%, contributing to the following changes

- lung excursion decreases by 10%;

- residual expiratory volume decreases by 20%;

- total lung capacity decreases by 5%;
- vital capacity of the lungs increases by 5% (100 - 200 ml);
- Pulmonary ventilation increases by 26%;
- the minute respiratory volume increases by 40% (up to 11 l/min);
- Increase in tidal capacity by 5%;
- the amount of air inhaled per minute increases by 36%;
- alveolar ventilation increases by up to 70%;
- respiratory rate increases by 15%;
- partial pressure of carbon dioxide decreases by 15 - 20%;
- proportional increase in oxygen consumption by 30-40%;
- the need for oxygen increases relative to the baseline by 15 - 33%.

Changes in the respiratory system in pregnant women are aimed at meeting the increasing oxygen needs of the mother's body and the fetus.

Digestive system

During pregnancy in healthy women, the digestive system undergoes topographic and functional changes:

- The pregnant uterus shifts the stomach from a horizontal position to a vertical position;
- the angle of the gastrointestinal junction changes;
- in the last weeks of pregnancy, the liver is displaced upwards and posteriorly and increases slightly in volume and blood circulation increases;
- bile duct dilation occurs;
- there is an increase or perversion of appetite, heartburn, salivation, and a tendency to constipation;
- the acidity of gastric juice and the secretory function of the digestive glands decrease;
- the processes of life and fermentation develop, which contributes to bloating and intoxication;
- relaxation of the cardiac sphincter contributes to increased heart rate and reflux esophagitis;

- Hypotension of the small intestine, as well as the colon, transverse colon and rectum develops;

- constipation, rectal edema and intoxication occur;

- the frequency of hemorrhoid recurrence increases due to stasis in the veins flowing into the inferior vena cava;

- plasma oncological pressure decreases, which contributes to the development of edema; - the concentration of globulins increases, especially due to carrier globulins, from 2.75 to 3 g/l;

- inactivation of estrogens and steroid hormones, especially those synthesized by the fetoplacental complex, is enhanced;

- the serum bilirubin level increases, especially at the end of pregnancy;

- increased production of plasma factors of the hemostatic system (fibrogen, factors II, IV, VIII, X).

In healthy pregnant women, the digestive system is characterized by a decrease in the tone of the smooth muscles of the internal organs, which contributes to reduced evacuation of food through the intestine, and increased absorption of fluid from the large intestine.

Urinary system

Almost 90% of healthy pregnant women experience morphological and functional changes in the urinary system:

- The length of the kidneys increases by an average of 1.0-2.0 cm and their size reaches 9-12 cm;

- the pelvic floor system expands and is asymmetrical;

- the diameter of the upper urinary tract increases;

- Renal blood flow rate increases by 25 - 35%;

- glomerular filtration rate increases by 35 - 50% without changes in reabsorption, which contributes to proteinuria (not more than 0.02 g/l in morning urine and not more than 0.075 g/l in daily urine);

- an increase in glomerular filtration rate by 50% leads to an increase in sodium filtration by 5000 - 10000 mmol/day;

- diuresis progressively increases up to 32 - 33 weeks of gestation (from 1200 ml to 2250 ml), followed by a decrease to 1200 ml at the end of pregnancy;

- urine acquires a persistent alkaline reaction, which is not a manifestation of a urinary tract infection, but may contribute to its development;

- due to hyperproduction of mineralocorticoids and increased tubular sodium adsorption, salt haemostasias changes;

- urine osmolarity decreases relative to plasma osmolarity;

- plasma osmolarity in physiological pregnancy, despite sodium retention, is in the range of 280 - 290 mmol/kg H2O;

- at the level of microcirculation vessels, there is a balance between the inflow and outflow of substances;

- in the case of provoking factors (physical overload, heat, water load), the equilibrium may change, resulting in physiological edema in pregnant women.

In cases when the inflow of all substances into the extracellular space exceeds the outflow, unstable edema in pregnant women is formed, which disappears in a state of physiological rest or when the pregnant woman changes her position in bed to the left.

Endocrine system

Complex morphological and functional changes in the endocrine glands occur in the ovaries from the moment of egg nidation into the endometrium, formation and functioning of the corpus luteum, and cessation of ovulation.

The development of pregnancy occurs due to qualitative and quantitative changes in sex hormones and other biologically active substances. In the first half of pregnancy, the corpus luteum hormone, progesterone, prevails, which inhibits the excitability and contractile activity of the uterus. In the later stages, estrogens and hormones with myotropic action predominate, which contribute to increased uterine excitability. The production of oxytocin and vasopressin increases in the hypothalamic nuclei, especially at the end of pregnancy and before delivery. Oxytocin from the hypothalamus enters the posterior pituitary gland via the portal system vessels, where it is released into the mother's bloodstream under the action

of pituitary cells. The paraventricular and supraoptic nuclei regulate the secretion of follicle-stimulating (FSH), luteinizing (LH), adrenocorticotropic (ACTH) and thyroid-stimulating (TSH) hormones by the adenohypophysis.

Significant morphological and functional changes occur in the pituitary gland under the influence of sex steroids (gestagens, estrogens) of the placenta. Under their influence, hypertrophy and proliferation of acidophilic cells (lactophores), called "pregnancy cells", occur in the anterior pituitary gland. With hyperplasia and hypertrophy of lactophores and the action of placental estrogens, prolactin synthesis increases more than 10 times, which contributes to the development and preparation of the mammary glands for lactation. A marked inhibition of follicle-stimulating hormone (FSH) and luteinising hormone (LH) production is observed at the onset of pregnancy, which leads to inhibition of the ovarian hormone-producing function, contributing to the cessation of follicle growth and maturation. There is an increase in the secretion of growth hormone (GH), which is associated with the growth of the uterus and other parts of the genital apparatus, as well as the appearance of acromegaly (enlargement of the limbs, lower jaw, brow bones) in some cases in pregnant women.

The sensitivity to adrenocorticotropic hormone (ACTH) in pregnant women's blood does not increase, but the sensitivity to it increases, especially in the adrenal cortex. Somatotropic hormone (SHBG) increases slightly at the end of gestation. Thyroid-stimulating hormone (TSH) remains at the same level as before pregnancy. However, in 20% of pregnant women in the first half of gestation, TSH levels decrease under the influence of chorionic gonadotropin (CG).

Changes in the thyroid gland are observed from the first weeks of gestation.
It is characterized by an increase in its size, number of follicles, colloid content and thyroid hormone levels by 35-40%. In the case of multiple pregnancies, when the level of hCG in the blood is significantly elevated, pituitary TSH production is suppressed in 100% of cases. As the gestation period increases, the level of hCG decreases and TSH returns to normal values, while the level of thyroid hormones remains elevated until delivery and only decreases before delivery. The transient

decrease in thyroid hormone levels contributes to additional stimulation of the thyroid gland by TSH, as a result of which the amount of free T4 and T3 fractions in the blood remains at normal levels, while the level of total (bound + free) T4 and T3 in all pregnant women is normally elevated.

During pregnancy, hyperplasia of the adrenal cortex occurs with no changes in the cerebral cortex. Blood flow in the adrenal glands increases, and the function of both the cortical and cerebral adrenal substance increases:

- glucocorticoids, which regulate protein and carbohydrate metabolism;
- mineralocorticoids that regulate mineral metabolism;
- the cortical substance of the adrenal glands is responsible for the synthesis of estrogens, progesterone and androgens;
- Binding of corticosteroids to transcortin reduces their utilisation by organs and tissues, which increases their levels in the mother's blood;
- increased levels of corticosteroids in the blood of pregnant women are also due to increased adrenal function in the fetus and the free passage of corticosteroids across the placenta. Increased glucocorticoid formation is also associated with the secretion of placental adrenocorticotropic hormone and increased sensitivity of the adrenal cortex to pituitary ACTH, as well as the influence of cortisol-like substances.

Increased levels of corticosteroids in the serum of pregnant women help to provide the developing embryo with the necessary ingredients (proteins, salts, carbohydrates, hormones) that the embryo itself is unable to produce.

Due to hypertrophy of the pancreatic ß-cells, insulin production in pregnant women increases almost 2-fold. In addition, starting from 9 to 11 weeks of gestation, the fetal pancreas produces its own insulin, and therefore the fetus is independent of maternal insulin. Changes in carbohydrate metabolism in pregnant women are associated not only with an increase in the functional state of the pancreatic function, but also with the influence of corticosteroids, hormones and enzymes of the fetoplacental complex. The main changes in the blood glucose content of pregnant women are characterized by 15 lower glucose levels and a gradual increase in its level after a glucose load. Therefore, fasting glucose levels are lower than in non-

pregnant women. In the case of fasting by a pregnant woman, excessive hypoglycemia and hyperinsulinemia develop rapidly. Chorionic gonadotropin and estrogens are stimulators of pancreatic insulin secretion, and also affect the improvement of peripheral glucose uptake and are an important factor in reducing glycaemia and glucosuria, which in the first half of pregnancy can contribute to hypoglycemic states.

The second trimester of pregnancy is characterized by the presence of hypoglycemic states and may be associated with the action of counter insulin hormones (cortisol, glucagon, placental lactogen, prolactin). Other factors that contribute to the development of insulin resistance in the third trimester of pregnancy include renal breakdown of insulin, activation of placental insulins, and increased synthesis and secretion of placental lactogen, especially after 34 weeks of gestation, which is a peripheral antagonist of the metabolic effects of insulin. Changes in carbohydrate metabolism during pregnancy may contribute to the onset of diabetes-like conditions:

- decreased glucose tolerance;
- increased insulin resistance;
- increased levels of circulating free fatty acids in the blood serum;
- significant decrease in fasting blood glucose levels;
- reduced use of glucose by peripheral tissues.

In early physiological pregnancy, the metabolic requirements of the fetus contribute to metabolic changes in the mother's body, which are characterized by the following

- development of fasting hypoglycemia with a subsequent decrease in blood insulin levels;
- a decrease in the content of amino acids in the blood;
- accelerated breakdown of fats from severe to ketoacidosis.

In later pregnancy, insufficient insulin supply to the pregnant woman's body leads to the development of

- hyperglycemia

- hyperosmolarity;
- metabolic acidosis.

During pregnancy, a woman's body undergoes significant physiological changes that ensure the proper development of the fetus and prepare the body for future childbirth and feeding.

Hygiene and nutrition of a pregnant woman

The changes that occur during pregnancy have a positive effect on the body of a healthy woman, contributing to the full development of important functional systems. Under the circumstances, pregnancy is usually easily tolerated. However, poor hygiene, unhealthy diet, excessive physical and mental stress can cause physiological disorders and contribute to pregnancy complications.

It is necessary to follow personal hygiene rules that contribute to maintaining health, normal fetal development, and preventing complications of pregnancy and childbirth. Healthy pregnant women can perform their usual physical and intellectual work, which is a need for every person. Work contributes to the proper functioning of the nervous, cardiovascular, muscular, endocrine and other systems. Work, especially work that involves physical activity, is essential for normal metabolism. Pregnant women's physical inactivity contributes to obesity, decreased muscle tone, constipation, and increases the risk of various complications of pregnancy and childbirth. Instead, a pregnant woman should avoid excessive exercise that causes physical and mental fatigue. Pregnant women are prohibited from riding bicycles and other means of transport that involve vibration and full-body shaking, as well as sports involving running, jumping, sudden movements and emotional overload.

Pregnant women working at enterprises where there is exposure to radiation, high temperatures, chemical and physical factors, night work, etc. should consult a doctor at a women's health clinic to exclude these factors and switch to lighter work.

The pace and duration of walking should be selected according to the degree of fitness, age and health of the pregnant woman. It is important to have sufficient rest, especially sleep for at least 8 hours a day. In case of sleep disturbances, hygiene measures are taken. The issue of sexual hygiene deserves attention. Sexual

intercourse is dangerous for women with signs of infantilism, inflammatory diseases of the genital organs, and previous menstrual disorders, as it can lead to the threat of pregnancy termination at various stages. However, it is practically impossible to completely prohibit sexual activity, so it should be limited during the first 2-3 months of pregnancy and stopped in the last months of pregnancy.

Smoking and alcohol consumption, which have a harmful effect on the body of the pregnant woman and the fetus, are prohibited. A pregnant woman should avoid contact with people with general and local infectious diseases.

Skin care during pregnancy is of great importance, as the human skin performs a number of important functions: protective, respiratory, absorption, excretory and thermoregulatory. Therefore, a pregnant woman should constantly take care of herself by taking showers, baths, and wet wipes.

Air and sun baths are recommended for 5-10 minutes at first, and then, as you get hardened, for 15-20 minutes. It is not advisable for a pregnant woman to stay in the open sun for a long time, especially in summer. In winter, ultraviolet radiation.

Pregnant women should prevent nipple cracks and mastitis by washing their breasts daily with room temperature water and baby soap, followed by drying with a stiff towel. Air baths for the mammary glands are performed for 10-15 minutes several times a day. In case of flat and retracted nipples, massage them after consulting a doctor or midwife. To prevent stagnation, the mammary glands should be in an elevated position. You should wear comfortable bras (preferably cotton) that do not compress the chest.

Methods of examination of a pregnant woman

An objective examination of a pregnant woman begins with a general examination, which is carried out according to generally accepted rules, starting with an assessment of the general condition, temperature measurement, examination of the skin and mucous membranes. Then the cardiovascular, respiratory, digestive, urinary, nervous and endocrine systems are examined. It is necessary to emphasize

the necessity of measuring blood pressure in both arms, as significant asymmetry is possible in gestation.

The special obstetric examination consists of an external obstetric examination, an internal obstetric examination and additional methods.

The external obstetric examination and fetal topography in the uterus includes:

1.Determination of the abdominal circumference and the height of the uterine floor.

The abdominal circumference is measured with a centimeter tape at the level of the navel. The height of the uterine floor is measured from the upper edge of the symphysis to the uterine floor.

The bottom of the uterus at the level of the symphysis	12 weeks
Midway between the womb and navel	16 weeks
At the level of the navel	24 weeks
In the middle of the distance between the navel and the xiphoid process	30-32 weeks
Reaches the sword-shaped process	36 weeks

The product of the abdominal circumference and the height of the uterine floor gives an indication of the expected weight of the fetus.

2.Palpation of the abdomen of pregnant women is carried out sequentially, using four methods of external examination (**Leopold's methods**).

To determine the position of the fetus, the following concepts are used in obstetrics:

Fetal position is the ratio of the longitudinal axis of the fetus to the longitudinal axis of the uterus. There are the following fetal positions:

- longitudinal - the longitudinal axis of the fetus and the longitudinal axis of the uterus coincide;

- transverse - the longitudinal axis of the fetus crosses the longitudinal axis of the uterus at a right angle;

- oblique - the longitudinal axis of the fetus forms an acute angle with the longitudinal axis of the uterus.

The longitudinal position of the fetus is normal, it occurs in 99.5% of all births, the transverse and oblique position is pathological (0.5% of births).

The fetal position is the ratio of the fetal back to the right and left sides of the uterus. There are two positions: the first and the second. In the first position, the back is turned to the left (2/3 of cases), and in the second position - to the right (1/3 of cases). In the transverse and oblique positions, the position is determined by the position of the head: the head on the left is the first position, on the right - the second.

The type of position is the relation of the fetal back to the anterior or posterior wall of the uterus. If the back is turned forward, it is an anterior position, if it is turned backwards, it is a posterior position.

Fetal breech position is the relationship of the fetal limbs and head to the fetal trunk. The normal position is flexed, namely: the head is bent and pressed against the body, the arms are bent at the elbow, crossed and pressed against the chest, the legs are bent at the knee and hip joints, crossed and pressed against the abdomen.

Fetal presentation is the relation to the plane of the pelvic entrance of the part of the fetus that descends first into the pelvis during labor (the anterior part). If the head of the fetus is above the pelvic entrance, the presentation is breech, if the pelvic end is above, it is called cephalic. The breech presentation occurs in 96% of births, and the cephalic presentation in 3.5%. If the head is slightly bent towards the chest (i.e. the back of the fetus is the frontal part) and is inserted into the pelvis by the area of the small parietal region, this is occipital presentation. Depending on the different degrees of extension of the fetal head, extensor breech presentation is formed - anterior, frontal and facial.

External pelvimetry.

3. Fetal auscultation.

The obstetric stethoscope determines the fetal heart rate from the beginning of the second half of pregnancy. The stethoscope is placed in the place where the fetal heartbeat is most clearly heard perpendicular to the anterior abdominal wall. The heartbeat is most clearly heard from the back of the fetus, in the breech position - below the navel, in the cephalic position - above the navel, on the left - in the first position, on the right - in the second position.

The normal fetal heart rate is 120-160 beats per minute. The heart sounds are double, rhythmic, and do not coincide with the pregnant woman's pulse.

Internal obstetric examination is performed during normal physical delivery

Vaginal examination of a pregnant woman is mandatory in case of

Normal (physiological) labor is labor with spontaneous onset and progression of labor activity in a pregnant woman at 37-42 weeks' gestation, occipital presentation of the fetus, with satisfactory condition of the mother and newborn after delivery. With the onset of labor, a pregnant woman is called a woman in labor.

1.Precursors of labor:

1.1. prolapse of the uterine floor,

1.2. increased reaction of the uterus to mechanical stimuli,

1.3. discharge of mucous plug from the cervical canal,

1.4. weight loss by 1-1.5 kg,

1.5. reduction in the amount of amniotic fluid,

1.6. insertion of the head in first-time mothers.

2.The preliminary period is a rare, mild cramping pain in the lower abdomen and lower back that occurs against the background of normal uterine tone lasting up to 6-8 hours, leading to softening, smoothing and opening of the cervix, deployment of the lower uterine segment, and lowering of the fetal anterior part.

Determining the onset of labor.

Contractions are spontaneous contractions of the uterine muscles. The intervals between contractions are called a pause.

Regular labor activity is the presence of 1-2 or more uterine contractions within 10 minutes, lasting 20 seconds or more, which leads to structural changes in the cervix - its smoothing and opening.

The biological readiness of the body for childbirth is determined by the degree of cervical maturity:

Assessment of the degree of cervical "maturity" according to the Bishop scale

Feature	Degree of "maturity" – 0 score	Degree of "maturity" – 1 score	Degree of "maturity" – 2 score
Cervical position	At the back	At the ahead	Middle
Consistency cervix of the uterus	Dense	Softened	Soft

Length cervix of the uterus (cm)	>2	1-2	<1
Condition of the outer sphincter (cm)	Close	Open on 1 cm	Open on 2 cm
Location of the anterior part of the fetus	Moving above the entrance to the pelvis	Pressed against the entrance to the pelvis	Pressed or fixed at the entrance to the pelvis

0-2 points - the neck is "immature"

3-5 points - cervix "not mature enough" > 6 points - cervix "mature"

Management of physiological pregnancy

The biomechanism of labor is a complex of translational, rotational, bending and extensor movements that the fetus makes while passing through the birth canal.

The biomechanism of labor in the anterior presentation consists of four moments.

The first moment is the flexion of the head and its lowering into the plane of entry into the pelvis.

The second moment is the internal rotation of the head.

The third moment is extension of the glans in the plane of exit.

The fourth stage is internal rotation of the shoulders and external rotation of the head.

The biomechanism of labor in the posterior view of the occipital presentation consists of four moments.

The first moment is the flexion of the head and its lowering into the plane of entry into the pelvis.

The second moment is the internal rotation of the head.

The third stage is additional flexion of the fetal head.

The fourth stage is head extension.

The fifth stage is internal rotation of the shoulders and external rotation of the head.

Regulation of labor activity

The onset of labor is the result of a gradual integration of morphological, hormonal, biochemical and biophysical states.

Clinical course of labor

Labor is divided into three periods:

The first period is cervical dilatation.

The second is the expulsion of the fetus.

The third is the subsequent one.

With the onset of labor, a pregnant woman is called a laboring woman.

The biomechanism of labor is a complex of translational, rotational, bending and extensor movements that the fetus makes as it passes through the birth canal.

The biomechanism of labor in the anterior presentation consists of four moments.

The first moment is the flexion of the head and its lowering into the plane of entry into the pelvis.

The second moment is the internal rotation of the head.

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The third moment is additional flexion of the fetal head.

The fourth moment is head extension.

The fifth moment is internal rotation of the shoulders and external rotation of the head.

Management of labor:

- assessment of the degree of predicted risk of maternal and perinatal pathology in order to determine the required level of assistance in labor;
- determination of the labor management plan and its mandatory informed agreement with the woman;
- providing emotional support to the woman in labor during childbirth (organization of partner childbirth);
- control over the condition of the mother and fetus in labor with the maintenance of a portogram;
- free position of the woman in labor during childbirth;
- anesthesia of labor according to indications;
- assessment of the child's condition at birth, primary toilet training of the newborn and early breastfeeding, implementation of the principles of the "heat chain".

Before gravida preparation includes:

- Cessation of harmful effects:

1.Smoking cessation.

2.Refusal to drink alcohol.

3.Exclusion of exposure to harmful industrial production factors.

4.Avoidance of psycho-emotional overload and stress.

- Women's health improvement and treatment of chronic diseases:

1.Normalisation of work and rest regime.

2.Creation of favorable psycho-emotional conditions at work and in the family (home).

3.Rational nutrition.

4.Regular physical activity (morning exercises, swimming, walking, etc.).

5.Sanitation of extragenital foci of chronic infection (tonsillitis, sinusitis, pyelonephritis, etc.).

6.Normalisation of body weight.

7.Rubella vaccination of immune negative women to prevent congenital rubella.

8.Vaccination against hepatitis B in women of reproductive age at risk, which prevents vertical transmission of infection, reduces the risk of liver failure and cirrhosis in the mother.

9.Preparation of patients with chronic extragenital diseases:

- diabetes mellitus: stable compensation of carbohydrate metabolism for three months before insemination and administration of folic acid 800 mcg per day 3 months before conception;
- arterial hypertension (maintenance of normotension, switching to antihypertensive drugs, additional use during pregnancy is permitted);
- hypothyroidism (correction of L-thyroxine replacement therapy to achieve euthyroid state);
- epilepsy (switching to anticonvulsants with less negative effect on the fetus, increasing the dose of folic acid to 800 mcg per day 3 months before conception);
- heart defects (radical surgical treatment if indicated);
- diseases requiring permanent anticoagulant therapy (cancellation of teratogenic coumarin derivatives, prescription of heparin)
- other extragenital diseases (surgical treatment, correction of therapy, achievement of disease remission).

Questions:

1. The structure of germ cells. Implantation.
2. Placenta, its structure and functions.
3. Critical periods of embryo and fetal development.
4. Influence of harmful factors on the embryo and fetus.
5. Physiological changes in the body of a woman during pregnancy.
6. Hygiene and nutrition of pregnant women.

7. Methods of examination of pregnant women. External and internal obstetric examination of pregnant women.

8. Topography of the fetus in the uterus.

9. Determination of early and late pregnancy.

10. Management of physiological pregnancy.

11. Determination of the degree of cervical maturity.

12. Biomechanism of labor in anterior and posterior types of occipital presentation.

13. Periods of labor.

14. The period of expulsion of the fetus. Clinic, management.

15. The sequential period. Signs of placental abruption. Clinic, management of the postpartum period (active management, expectant management).

16. Conservative methods of manure removal.

17. Determination of the integrity of the litter.

LECTURE 2
TOPIC: "EMERGENCY CONDITIONS IN OBSTETRICS AND GYNECOLOGY (PRE-ECLAMPSIA, ECLAMPSIA, "ACUTE" ABDOMEN IN GYNECOLOGY)"

Objective: The lecture material is aimed at familiarizing higher education students with the occurrence of emergency conditions in obstetrics and gynecology and the changes in the body that they can lead to. Hypertensive disorders during pregnancy (pre-eclampsia, eclampsia) remain one of the most pressing problems of modern obstetrics, largely determining the structure of maternal and perinatal mortality.

Acquire knowledge of diagnosis and treatment of ectopic pregnancy. To learn the features of the course of diseases that cause "acute abdomen" in gynecology, depending on the classification of disease forms.

Basic concepts: Early gestosis: classification, clinic, diagnosis, treatment. Hypertensive disorders during pregnancy. Pre-eclampsia: pathogenesis, classification, diagnosis, clinic, treatment. Eclampsia: clinic, diagnosis, complications, emergency care.

Ectopic pregnancy, ovarian apoplexy. Classification, clinic, diagnosis, treatment.

Plan and organizational structure of the lecture:

1.Definition, risk factors and incidence of hypertensive disorders in pregnancy.

2.Diagnosis of pre-eclampsia, eclampsia.

3.Management of pregnant women with pre-eclampsia of varying severity, eclampsia.

4.Pathological processes leading to the development of ectopic pregnancy.

5.Diagnostic criteria for ectopic pregnancy.

6.Emergency care for ectopic pregnancy

Final stage

Summary of the lecture, general conclusions.

Answers to possible questions

Tasks for self-preparation of students

General material and methodological support for the lecture:

Professional algorithms, structural and logical diagrams, tables, models, videos, results of laboratory and instrumental studies, situational tasks, patients, medical histories.

Content of the lecture:

Pregnancy gestosis is a pathological condition that occurs in connection with pregnancy. The fetal egg is considered to be the factor in the development of gestosis. In domestic obstetrics, it is customary to distinguish between early and late gestosis.

In our country, there is different terminology for this pathology. The term late gestosis can be considered outdated; the modern terms are hypertensive disorders in pregnancy (pre-eclampsia, eclampsia).

A situation in which a fertilized egg is grafted and develops outside the ectopic cavity. In most cases, this happens in the fallopian tubes, sometimes in the ovaries or in the abdominal cavity - cases of fetal development outside the uterine cavity are called ectopic pregnancy. Depending on the location of the implantation of the ovum, ectopic pregnancy is divided into tubal, ovarian, in the rudimentary horn of the uterus and abdominal.

Etiopathogenesis of pre-eclampsia

Among the causes of pre-eclampsia, especially severe forms, the leading place belongs to extragenital pathology, autoimmune disorders, and endocrine diseases.

A significant role in the origin of pre-eclampsia belongs to:

1. Insufficiency of the uterine spiral arterioles, which causes impaired placental circulation;

2. Vascular endothelial dysfunction associated with autoimmune disorders caused by pregnancy.

Changes in organs characteristic of pre-eclampsia:

1. Cardiovascular system: generalized vasospasm, increased peripheral vascular resistance, hypovolemia.

2. Hematological changes: platelet activation accompanied by consumption coagulopathy, decreased plasma volume, increased blood viscosity, hemoconcentration.

3. Kidneys: proteinuria, decreased glomerular filtration rate, decreased uric acid excretion.

4. Liver: periportal necrosis, subcapsular hematoma.

5. CNS: cerebral edema, intracranial hemorrhage.

There is a severe clinical form of gestosis - HELLPP syndrome.

Etiology and pathogenesis of ectopic pregnancy

Implantation of the ovum outside the uterine cavity occurs as a result of a violation of the transport function of the fallopian tubes, changes in the properties of the ovum itself.

Tubal dysfunction is associated with

- inflammatory processes of any etiology;
- hormonal status of the body;
- surgical intervention on the tubes.

Clinical manifestations of hypertensive disorders

The classical triad of gestational symptoms (edema, proteinuria, hypertension) described in 1913 by the German obstetrician Hagemeister. Headache, visual disturbances, pain in the epigastrium and right hypochondrium, which are clinical manifestations of severe pre-eclampsia.

Diagnosis

The diagnosis of pre-eclampsia is justified at more than 20 weeks of gestation in the presence of blood pressure greater than 140/90 mm Hg or in the case of a 15% increase in diastolic blood pressure from the baseline in the first trimester of pregnancy with proteinuria (protein in the daily urine greater than 0.3 g/l) and generalized edema (weight gain of more than 900.0 g per week or 3 kg per month).

The diagnosis of pre-eclampsia is made in the presence of hypertension in combination with proteinuria or generalized edema, or in the presence of all three signs of consumption coagulopathy, decreased plasma volume, increased blood viscosity, and hemoconcentration.

Thrombocytopenia and hemolysis occur as a result of endothelial damage in altered vessels. If this vicious circle of endothelial damage and intravascular activation of the coagulation system is not interrupted, DIC with fatal bleeding develops within a few hours.

The diagnosis of pre-eclampsia is made in the presence of hypertension in combination with proteinuria or generalized edema, or in the presence of all three signs (Table 1)

Table 1.

Diagnostic criteria for the severity of pre-eclampsia/eclampsia.	Diastolic ABP	Proteinuria g/day	Other sings
Gestational hypertension or mild pre-eclampsia	90-99	<0,3	
Moderate pre-eclampsia	100-109	0,3-5,0	Swelling on the face, hands Sometimes a headache

Severe pre-eclampsia	>110	>5	Generalized, significant swelling Headache Visual disturbance Pain in the epigastrium and/or right hypochondrium Hyperreflexia Oliguria (< 500 ml/day) Thrombocytopenia
Eclampsia	>90	>3	Seizure (one or more)

Note. The presence of at least one of the criteria for more severe pre-eclampsia in a pregnant woman is the basis for the corresponding diagnosis.

At present, there are "pure" and "combined" forms of PPH. Combined gestosis develops against the background of extragenital diseases.

For the combined forms of late gestosis, the diagnosis of gestosis is made depending on the manifestations and severity, and then the phrase "against the background of extragenital pathology" is added.

Only diastolic blood pressure is used as a criterion for the severity of hypertension in pregnant women, indications for starting antihypertensive treatment and assessing its effectiveness.

Additional clinical and laboratory criteria should also be determined for the diagnosis of pre-eclampsia (Table 2).

Table 2

Additional clinic-laboratory criteria of pre-eclampsia	Mild pre-eclampsia	Pre-eclampsia moderate severity	Severe pre-eclampsia
Uric acid, mlmol/l	<0,35	>0,35-0,45	>0,45
Urea, mlmol/l	<4,5	4,5-8,0	>8
Creatinine, μmol/l	<75	75-120	>120 or more
Platelets-109/l	>150	80-150	<80

To monitor the condition of pregnant women at risk of developing pre-eclampsia, screening tests (body weight control, blood pressure control, platelet count, urine protein test, urine bacterioscopy) should be performed once every 3 weeks in the first half of pregnancy and once every 2 weeks from 20 to 28 weeks and weekly after 28 weeks of pregnancy.

Treatment of pre-eclampsia

Treatment depends on the condition of the pregnant woman, blood pressure and proteinuria parameters.

Mild pre-eclampsia

If a pregnant woman's condition meets the criteria for mild pre-eclampsia at up to 37 weeks' gestation, she can be monitored in a day-care hospital. The patient is trained to independently monitor the main indicators of pre-eclampsia: blood pressure measurement, fluid balance and edema monitoring, and fetal movements.

Laboratory tests are performed: general urinalysis, daily proteinuria, creatinine and plasma urea, hemoglobin, hematocrit, platelet count, cholangiogram, ALT and

AST, fetal status (non-stress test if possible). No drug therapy is prescribed. Fluid and salt intake is not restricted.

Indications for hospitalization

At least one sign of moderate pre-eclampsia; fetal distress. In case of a woman's stable condition within the criteria for mild pre-eclampsia, the tactics of pregnancy management are wait-and-see. Labor is managed according to the obstetric situation.

Pre-eclampsia of moderate severity

Planned hospitalization of a pregnant woman

Initial laboratory examination: complete blood count, hematocrit, platelet count, cholangiogram, ALT and AST, blood group and Rh factor (if accurate information is not available), general urinalysis, determination of daily proteinuria, creatinine, urea, plasma uric acid, electrolytes (sodium and potassium), assessment of the fetus' condition.

Restraint regime: semi-bed rest, limitation of physical and mental stress.

Rational nutrition: food with a high protein content, **without salt and water restrictions**, consumption of foods that do not cause thirst.

A complex of vitamins and microelements for pregnant women, if necessary, iron supplements. In case of diastolic blood pressure >100 mm Hg, antihypertensive drugs (methyldopa 0.25-0.5 g 3-4 times a day, maximum dose - 3 g per day; if necessary, nifedipine 10 mg 2-3 times a day, maximum daily dose - 100 mg) are prescribed.

During pregnancy up to 34 weeks, corticosteroids are prescribed for the prevention of respiratory distress syndrome (RDS) - dexamethasone 6 mg after 12 hours, four times within 2 days.

The study is conducted with the established frequency of **dynamic monitoring of indicators:**

- blood pressure monitoring - every 6 hours on the first day, then twice a day;
- auscultation of the fetal heartbeat every 8 hours;
- urine analysis - daily;
- daily proteinuria - daily;

- hemoglobin, hematocrit, cholangiogram, platelet count, ALT and AST, creatinine, urea - every three days;
- daily monitoring of the fetal condition.

With the progression of pre-eclampsia, preparations for delivery are initiated:

Delivery.

The method of delivery at any stage of gestation is determined by the readiness of the birth canal and the condition of the fetus. If the preparation of the birth canal with prostaglandins is ineffective, a caesarean section is performed. If the cervix is sufficiently mature, labor induction is performed and delivery is performed through the natural birth canal.

The transition to the management of a pregnant woman according to the algorithm of severe pre-eclampsia is carried out in cases of increase of at least one of the following signs

- diastolic blood pressure >110 mm Hg
- headache
- visual impairment;
- pain in the epigastric region or right hypochondrium;
- signs of hepatic insufficiency;
- oliguria (< 25 ml/h);
- thrombocytopenia (< 100-109/L);
- signs of diesel engine syndrome;
- increased ALT and AST activity.

Severe pre-eclampsia

A pregnant woman is admitted to the anesthesiology and intensive care unit of a level III hospital to assess the degree of pregnancy risk for mother and fetus and to choose a method of delivery within 24 hours. An individual ward is allocated with intensive round-the-clock medical supervision. Immediate consultations with a therapist, neurologist, and ophthalmologist.

A peripheral vein is catheterized for long-term infusion therapy, a central vein is catheterized to control central blood pressure, and a bladder is catheterized to control hourly diuresis. If indicated, trans nasal gastric catheterization.

Initial laboratory examination: complete blood count, hematocrit, platelet count, cholangiogram, ALT and AST; blood group and Rh factor (if absent); complete urine analysis, determination of proteinuria, creatinine, urea, total protein, bilirubin and its fractions, electrolytes.

Careful dynamic observation:

- blood pressure monitoring - every hour;
- urine analysis - every 4 hours;
- control of hourly diuresis (bladder catheterization with a Phalen catheter);
- hemoglobin, hematocrit, platelet count, functional liver tests, plasma creatinine - daily;
- Fetal monitoring.

Treatment. Restraint (strict bed rest). In pregnancy up to 34 weeks - corticosteroids for the prevention of RDS - dexamethasone 6 mg after 12 hours, four times, for 2 days.

Active management tactics with delivery within 24 hours of diagnosis, regardless of gestational age.

Antihypertensive therapy.

Treatment of arterial hypertension is not pathogenic, but is necessary for the mother and fetus. BP lowering is aimed at preventing hypertensive encephalopathy and cerebral hemorrhage. It is necessary to strive to bring blood pressure to a safe level (150/90-160/100 mm Hg, not lower!), which ensures the preservation of adequate cerebral and placental blood flow. A rapid and sharp decrease in blood pressure can cause a deterioration in the condition of the mother and fetus. Antihypertensive therapy is performed when the diastolic pressure is > 100 mm Hg. It has been proven that drug antihypertensive therapy does not should be initiated if the blood pressure is <150/100 mm Hg. Continuous antihypertensive therapy can reduce the incidence of hypertension progression (development of severe

hypertension) and increase the severity of pre-eclampsia, but cannot prevent pre-eclampsia. Continuous antihypertensive therapy does not improve the effects of pregnancy on the fetus and even leads to an increase in the incidence of low birth weight and low birth weight for gestational age. In general, lowering blood pressure through drug therapy can improve the outcome of pregnancy for the mother but not for the fetus. Diuretics should be avoided, especially in cases of pre-eclampsia (except for pulmonary edema or renal failure). Angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers are strictly contraindicated.

Magnesium sulphate is used as an anticonvulsant with a simultaneous antihypertensive effect, which is the drug of choice for the prevention and treatment of seizures in hospitalized women due to insufficient treatment of severe pre-eclampsia

Magnesium sulphate has been proven to prevent the development of eclampsia and is the drug of choice for its treatment. All women with eclampsia should receive magnesium sulphate during labor and for 24 hours after delivery. Magnesium therapy is a bolus injection of 4 g of magnesium sulphate dry matter (IV over 5 minutes) followed by a continuous intravenous infusion at a rate determined by the patient's condition. Magnesium therapy is started from the moment of hospitalization if the diastolic blood pressure is > 130 mm Hg. The purpose of magnesium therapy is to maintain the concentration of magnesium ions in the pregnant woman's blood at the level required for the prevention of seizures.

The adequacy of the dose of magnesium sulfate is determined by its serum level in the first 4-6 hours. If it is not possible to monitor serum magnesium levels, the presence/absence of clinical symptoms of magnesium sulfate toxicity (decreased knee reflexes, PD < 14) should be carefully assessed hourly.

Monitoring of a pregnant woman's condition during antihypertensive and magnesium therapy includes blood pressure measurement every 20 minutes; heart rate calculation; monitoring of respiratory rate and pattern (respiratory rate should be at least 14 per 1 minute); determination of O2 saturation (at least 95%); cardiac monitoring; ECG; checking knee reflexes every 2 hours; monitoring of hourly

diuresis (at least 50 ml/hour). In addition, the symptoms of increasing severity of pre-eclampsia are monitored: headache, visual disturbances (double vision, "flickering flies" in the eyes), pain in the epigastrium lungs); increased heart rate and signs of hypoxia; decreased level of consciousness; fetal condition (auscultation of the heartbeat every hour, fetal monitoring).

Delivery tactics.

Delivery is carried out taking into account the obstetric situation. Preference is given to delivery through the natural birth canal with adequate anesthesia (epidural anesthesia or nitrous oxide inhalation).

Indications for a planned caesarean section in case of severe pre-eclampsia are progression of pre-eclampsia or deterioration of the fetus in a pregnant woman with an immature birth canal.

After delivery, treatment of pre-eclampsia is continued depending on the woman's condition, clinical symptoms and laboratory parameters. Blood pressure monitoring and antihypertensive therapy are required. Doses of antihypertensive drugs are gradually reduced, but not earlier than 48 hours after delivery. Magnetic therapy should be continued for at least 24 hours after delivery.

Pre-eclampsia in the postpartum period

A protective regime, blood pressure control, and a balanced diet are prescribed.

Laboratory examination: general blood count (hemoglobin, hematocrit, platelet count) and urine, biochemical blood test (ALT and AST, bilirubin, creatinine, urea, total protein), cholangiogram.

Treatment. If antihypertensive drugs are used before delivery, they are continued after delivery. In case of insufficient effectiveness of therapy, thiazide diuretics are added. If hypertension occurs for the first time after childbirth, treatment is started with thiazide diuretics. Magnesium sulphate is prescribed as indicated in case of risk of eclampsia. Careful monitoring of uterine involution is performed. Prevention of bleeding by administration of oxytocin.

Eclampsia

A high risk of developing eclampsia is indicated by severe headache, high hypertension (diastolic blood pressure >120 mmHg), nausea, vomiting, visual disturbances, pain in the right hypochondrium and/or epigastric region.

The main goals of emergency care are

- cessation of seizures;
- restoration of airway patency.

Tasks of intensive care after seizure control:

- Prevention of recurrent seizures;
- Elimination of hypoxia and acidosis (respiratory and metabolic);
- prevention of aspiration syndrome;
- emergency delivery.

First aid in the event of an eclampsia attack. Treatment in the event of a seizure begins on the spot. An intensive care unit is set up or the pregnant woman is admitted to the anesthesiology and intensive care unit. The patient is laid on a flat surface in a left-sided position, the airway is quickly freed by opening the mouth and pushing the lower jaw forward, and the contents of the oral cavity are evacuated. If possible, if spontaneous breathing is preserved, an airway is inserted and oxygen is inhaled. If prolonged aponia develops, immediately start forced ventilation with a nasolabial mask with 100% oxygen in positive pressure mode at the end of exhalation. If the seizures recur or the patient remains in a coma, muscle relaxants are administered and the patient is transferred to artificial lung ventilation (ALV) in the mode of moderate hyperventilation.

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mask with 100% oxygen in positive pressure mode at the end of exhalation. If the seizures recur or the patient remains in a coma, muscle relaxants are administered and the patient is transferred to artificial lung ventilation (ALV) in the mode of moderate hyperventilation.

A woman who has suffered eclampsia is monitored in the intensive care unit or an individual fasting is organized.

The delivery is carried out urgently. If the obstetric situation does not allow for immediate delivery through the natural birth canal, a caesarean section is performed. The delivery is performed immediately after the seizure is eliminated on the background of constant administration of magnesium sulfate and antihypertensive therapy. If the seizure continues, urgent delivery is performed after the patient is transferred to mechanical ventilation. After the end of the surgical intervention, mechanical ventilation is continued until the patient's condition stabilizes. After delivery, treatment is continued according to the condition of the woman in labor. Magnetic therapy should continue for at least 48 hours.

Follow-up of a woman with pre-eclampsia/eclampsia after discharge from the maternity hospital. In an antenatal clinic with the participation of general practitioner conducts follow-up care for a woman who has experienced moderate or severe pre-eclampsia or eclampsia.

Women who need treatment with antihypertensive drugs are examined weekly after discharge from the maternity hospital with mandatory laboratory monitoring of proteinuria and creatinine concentration in the blood plasma.

If hypertension persists for 3 weeks after delivery, the woman is admitted to a therapeutic hospital. The duration of follow-up after moderate or severe pre-eclampsia or eclampsia is 1 year.

Recommend that women who have had pre-eclampsia have their blood pressure monitored daily for a year after delivery, as large prospective studies have shown that women who have had gestational hypertension or pre-eclampsia have an increased risk of developing hypertension in the future; death from stroke; and death from all cardiovascular causes.

Therefore, such women should be under the supervision of a physician and undergo regular check-ups (cholesterol and glucose testing annually).

Clinic and diagnosis of ectopic pregnancy

Causes of ectopic pregnancy: chronic inflammation of the uterine appendages, abnormal development of the fallopian tubes, adhesions in the pelvic area caused by endometriosis, appendicitis, infectious processes after childbirth or termination of pregnancy, surgery on the fallopian tubes, use of IUCDs, minipill and medroxyprogesterone injections, endocrine disorders. In gynecology, tubal pregnancy is more common, with tubal rupture or tubal abortion.

Pregnancy disrupted by tubal rupture: acute onset, in which some women have a delayed period, lower abdominal pain spreads to the anus, sub-, supraclavicular area, shoulder or shoulder blade, accompanied by nausea or vomiting, dizziness up to loss of consciousness, sometimes diarrhea.

The patient is often lethargic, less often shows signs of anxiety, the skin and mucous membranes are pale, the extremities are cold, and breathing is often shallow. Tachycardia, weak pulse, low blood pressure. The tongue is moist, not coated. The abdomen is slightly distended, there is no tension in the abdominal wall muscles. On palpation, there is tenderness in the lower abdomen, more on the side of the lesion, and symptoms of peritoneal irritation are also expressed. Percussion - dullness in the lower abdomen.

Mirror examination: cyanosis and pallor of the vaginal mucosa and exocervix. Bimanual examination (very painful) reveals flattening or protrusion of the posterior or one of the lateral vaults. The uterus is easily displaced, as if "floating" in free fluid.

If in doubt about the correctness of the diagnosis, an abdominal puncture is performed through the posterior vaginal vault.

The termination of tubal pregnancy by the type of tubal abortion presents diagnostic difficulties, as it is characterized by a slow course and does not have a noticeable effect on the general condition of the patient. It should be emphasized that

a carefully collected history is of invaluable assistance in the diagnosis of tubal abortion. The main triad of symptoms in tubal abortion is delayed menstruation, abdominal pain, and bloody vaginal discharge.

The abdomen is soft, painless to palpation. On examination in mirrors: loosening and cyanosis of the mucous membrane and bloody discharge from the cervical canal. Bimanual examination: slightly enlarged uterus, unilateral enlargement of the appendages (often sausage-shaped or retort-shaped); vaginal vaults may remain high or flattened.

Additional research methods:

1. Determination of chorionic gonadotropin (CG) in blood serum and urine.
2. ULTRASOUND.
3. Laparoscopy.
4. Histological examination of the endometrial scraping.

Treatment can be surgical and conservative. Surgical treatment of tubal pregnancy in most cases is salpingectomy. The purpose of this treatment is to save the woman's life. In cases uncomplicated by severe bleeding, organ-preserving operations can be performed, some of them during laparoscopy: salpingotomy, segmental resection and anastomosis, fimbria evacuation. Due to a certain risk of developing trophoblastic disease, it is recommended to study the level of hCG 2-3 weeks after surgery to compare with the previous level. In case of persistent or elevated hCG levels, repeat testing or methotrexate therapy is performed.

Conservative treatment with methotrexate is rarely used as an independent method.

Laparotomy is performed when a diagnosis of an aborted ectopic pregnancy is made. A delay in the operation can lead to catastrophic consequences. The first steps should be to remove the patient out of shock, stop bleeding and support the cardiovascular system.

Algorithm for the treatment of ectopic pregnancy.

Principles of management of patients with ectopic pregnancy:

1. Suspected ectopic pregnancy is an indication for urgent hospitalization.

2. Early diagnosis helps to reduce the number of complications and provides an opportunity to use alternative methods of treatment.

3. If an ectopic pregnancy is diagnosed, urgent surgical intervention (laparoscopy, laparotomy) is necessary. Surgical treatment of ectopic pregnancy is optimal. In modern practice, conservative methods of treating ectopic pregnancy can be used. 4. In the case of a pronounced clinical picture of a disturbed ectopic pregnancy, hemodynamic disorders, hypovolemia, the patient is immediately hospitalized for emergency surgery as soon as possible using a laparotomy approach. If the clinical picture is erased, there are no signs of hypovolemia and internal bleeding, pelvic ultrasound and/or laparoscopy are performed. 5. At the prehospital stage in case of ectopic pregnancy, the scope of emergency care is determined by the general condition of the patient and the amount of blood loss. Infusion therapy (volume, rate of administration of solutions) depends on the stage of hemorrhagic shock (see the protocol - "Hemorrhagic shock"). 6. Severe condition of the patient, presence of severe hemodynamic disorders (hypotension, hypovolemia, hematocrit less than 30%) are absolute indications for surgical intervention.

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3. If an ectopic pregnancy is diagnosed, urgent surgical intervention (laparoscopy, laparotomy) is necessary. Surgical treatment of ectopic pregnancy is optimal. In modern practice, conservative methods of treating ectopic pregnancy can be used.

4. In the case of a severe clinical picture of a disturbed ectopic pregnancy, hemodynamic disorders, hypovolemia, the patient is immediately hospitalized for emergency surgery as soon as possible using a laparotomy approach. If the clinical picture is erased, there are no signs of hypovolemia and internal bleeding, pelvic ultrasound and/or laparoscopy should be performed.

5. At the pre-hospital stage in case of ectopic pregnancy, the scope of emergency care is determined by the general condition of the patient and the amount of blood loss. Infusion therapy (volume, rate of administration of solutions) depends on the stage of hemorrhagic shock (see the protocol - "Hemorrhagic shock").

6. Severe condition of the patient, the presence of severe hemodynamic disorders (hypotension, hypovolemia, hematocrit less than 30%) are absolute indications for surgical intervention by laparotomy with removal of the pregnant fallopian tube and antishock therapy.

7. An integrated approach to the treatment of women with ectopic pregnancy is used, which includes: a) surgical treatment; b) control of bleeding, hemorrhagic shock, blood loss; c) management of the postoperative period; d) rehabilitation of reproductive function.

8. Surgical treatment is performed using both laparotomy and laparoscopic access. The advantages of laparoscopic techniques include:

-Shortening the duration of the operation;

-Reduction of the duration of the postoperative period;

-Shortening the length of hospital stay;

-Reducing the number of scarring changes in the anterior abdominal wall;

-cosmetic effect.

9. Performing organ-preserving operations in ectopic pregnancy is accompanied by the risk of developing trophoblast persistence in the postoperative period, which is the result of its incomplete removal from the fallopian tube and abdominal cavity. The most effective method of preventing this complication is a thorough abdominal toilet with 2-3 liters of saline and a single administration of methotrexate at a dose of 75-100 mg intramuscularly on the first or second day after surgery.

Operations used in case of tubal pregnancy:

1. Salpingostomy (tubectomy). A longitudinal salpingostomy is performed. After removal of the ovum, the salpingostomy is usually not sutured. If the chorionic villi do not grow into the muscular membrane of the fallopian tube, it is limited to scraping it out.

2. Segmental resection of the fallopian tube. The segment of the fallopian tube containing the ovum is removed, after which the two ends of the tube are anastomosed. If it is impossible to perform a salpingo-salpingo anastomosis, both ends can be tied and the anastomosis can be performed later.

3. Salpingectomy. This operation is performed in case of a disrupted tubal pregnancy accompanied by massive bleeding. In this case, the operation and haemo-transfusion are performed simultaneously.

Surgical treatment is required in case of pelvic-peritonitis with pyosalpinx, pyovar and tub ovarian abscess.

Widespread peritonitis is characterized by early onset endogenous intoxication.

Classification of peritonitis according to K.S. Simonian:

Phase I - reactive; Phase II - toxic; Phase III - terminal.

Clinic: abdominal pain, protective tension of the abdominal wall muscles, positive symptoms of peritoneal irritation, persistent intestinal paresis.

High fever, shallow breathing, vomiting, restlessness and euphoria, tachycardia, cold sweat. Expressed leukocytosis with a shift in the leukocyte formula to the left and toxic neutrophil granularity, increased alkaline phosphatase levels, a sharp decrease in platelet count

Treatment in 3 stages: preoperative preparation, surgical intervention, intensive care in the postoperative period.

Preoperative preparation: gastric decompression, subclavian vein catheterization (infusion therapy is performed to eliminate hypovolemia and metabolic acidosis, correct water, electrolyte and protein balance, and detoxify the body), administration of cardiac medications, adequate oxygenation, and intravenous antibiotics in the highest possible dosage.

The scope of surgical intervention is strictly individual, a special requirement is the complete removal of the infection focus with subsequent drainage of the abdominal cavity.

The duration of infusion therapy in the postoperative period should pursue the following goals

- Elimination of hypovolemia by administration of colloidal solutions and protein preparations;

- replenishment of chloride and potassium loss;

- correction of acidosis;

- meeting the body's energy needs;

- antienzyme and anticoagulant therapy;

- Providing forced diuresis;

- fight against infection through the use of broad-spectrum antibiotics;

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- antienzyme and anticoagulant therapy;

- Providing forced diuresis;

- fight against infection through the use of broad-spectrum antibiotics;

-prevention and treatment of functional insufficiency of the cardiovascular system;

- prevention and elimination of hypovitaminosis.

It is very important to restore the motor-evacuation function of the stomach and intestines.

Questions:

1.What is the classification of pre-eclampsia?

2.What are the main theories of etiology, pathogenesis of pre-eclampsia?

3.What is the clinic of pre-eclampsia of varying severity?

4.What are the methods of assessing the severity of pre-eclampsia?

5.What are the doctor's tactics and methods of treatment of mild pre-eclampsia?

6.What are the doctor's tactics and methods of treatment of moderate pre-eclampsia?

7.What are the doctor's tactics and methods of treatment of severe pre-eclampsia?

8.What are the doctor's tactics and methods of treatment of pre-eclampsia in the postpartum period?

9.What is the clinic and diagnosis of eclampsia?

10.What is the first aid in the development of an eclampsia attack?

11.What are the obstetric tactics and treatment of eclampsia?

12.What is the follow-up of parturient with pre-eclampsia/eclampsia after discharge from hospital?

13.What is the classification of ectopic pregnancy?

14.What are the means of developing an acute abdomen in ectopic pregnancy?

15.What are the control means and methods for the development of ectopic pregnancy?

16.What are the criteria for monitoring the development of ectopic pregnancy?

17.What are the surgical interventions for the development and progression of ectopic pregnancy?

Literature used by the lecturer to prepare the lecture

Basic literature:

1. Obstetrics: student's book / Акушерство: підручник / Gladchuk I.Z., Ancheva I.A. Vinnytsia: Nova Knyga, 2021. –288 p.
2. Obstetrics and Gynecology: in 2 vol.:textbook. Volume 2. Gynecology / V.I. Gryshchenko, M.O. Shcherbina, B.M. Ventskivskyi et al.; edited by V.I. Gryshchenko, M.O. Shcherbina. — 3th edition. – K.: AUS Medicine Publishing, 2022 – 352 p.
3. Obstetrics and Gynecology: in 2 vol.:textbook. Volume 1. Obstetrics / V.I. Gryshchenko, M.O. Shcherbina, B.M. Ventskivskyi et al.; edited by V.I. Gryshchenko, M.O. Shcherbina. — 2th edition. – K.: AUS Medicine Publishing, 2018 – 392 p.
4. 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.
5. Llewellyn-Jones Fundamentals of Obstetrics and Gynaecology (10th Ed). Jeremy Oats, Suzanne Abraham. Elsevier. 2016. – 384 pp.
6. 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.
7. Dutta, Durlav Chandra. D. C. Dutta's Textbook of Gynecology including Contraception / D.C. Dutta; ed/ Hiralal Konar. – 7th.ed. – New Delhi: Jaypee Brothers Medical Publishers, 2016. – XX, 574 p.

Additionally literature:

1. 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.
2. 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.

3. Modern technical teaching aids (see appendix to the work program of the 4th year)

4. Prevention of purulent-septic complications during laparoscopic surgeries on pelvic organs with the risk of vaginal microbiota contamination / Zaporozhan VN, Gladchuk IZ, Rozhkovska NM, Volyanska AG, Shevchenko OI //World of Medicine and Biology. - 2020- №1(71). - P.49- 53. (Web of science)

5. Normative documents of the Ministry of Health of Ukraine on obstetrics and gynecology:

- Order No. 676 of 12/31/2004 "On approval of clinical protocols for obstetric and gynecological care"
- Order No. 782 dated 12.29.2005 "On the approval of clinical protocols for obstetric and gynecological care"(as amended in accordance with the orders of the Ministry of Health)
- Order No. 900 of 12/27/2006 Clinical protocol on obstetric care. "Fetal distress during pregnancy and childbirth."
- Order No. 901 dated 27.12.2006 Clinical protocol on obstetric care. "Transferred pregnancy".
- Order No. 906 of 12/27/2006 Clinical protocol on obstetric care. Perinatal infections.
- Order No. 540 dated 04.08.2006 On approval of the principles of breastfeeding support, criteria and procedure for evaluating a health care facility for compliance with the status "Child-friendly Hospital".
- Order No. 716 dated 14.11.2007 "On the approval of the clinical protocol for obstetric care "Prevention of transmission of HIV from mother to child".
- Order No. 502 dated August 29, 2008, "On approval of the clinical protocol for antibacterial prophylaxis in surgery, traumatology, obstetrics and gynecology"
- Order No. 624 03.11.2008 Clinical protocol for obstetric care "Normal childbirth".
- Order No. 417 dated 15.07.2011 "On the organization of ambulatory obstetric and gynecological care in Ukraine"

- Order No. 976 of 12/27/2011 Vaginal delivery after caesarean section (C-section)
- Order No. 977 of 12/27/2011 Clinical protocol for obstetric care "Caesarean section".
- Order No. 423 dated 05/24/2013 "On approval of the procedure for providing complex medical care to a pregnant woman during an unwanted pregnancy, forms of primary accounting documentation and instructions for filling them out"
- Order No. 955 dated 05.11.2013 "Procedurecarrying out emergency post-contact prevention of HIV infection among employees in the performance of professional duties".
- Order No. 59 dated 21.01.2014 On the approval and implementation of medical and technological documents on the standardization of medical care for family planning.
- Order No. 205 dated 03.24.14. Clinical protocol "Obstetric bleeding".
- Order No. 236 dated 02.04.2014 "Papproval and implementation of medical and technological documents on the standardization of medical care for dysplasia and cervical cancer".
- Order No. 319 dated 06.04.2016 "On the approval and implementation of medical and technological documents on the standardization of medical care for genital endometriosis"
- Order No. 353 dated 04/13/2016 "On the approval and implementation of medical and technological documents on the standardization of medical care for abnormal uterine bleeding"
- Order No. 869 dated 05.05.2021 "On approval of the unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Endometrial hyperplasia"

13. ELECTRONIC INFORMATION RESOURCES

1. https://www.cochrane.org/- Cochrane / Cochrane Library

2. https://www.acog.org/- The American College of Obstetricians and Gynecologists
3. https://www.uptodate.com– UpToDate
4. https://online.lexi.com/- Wolters Kluwer Health
5. https://www.ncbi.nlm.nih.gov/- National Center for Biotechnology Information / National Center for Biotechnology Information
6. https://pubmed.ncbi.nlm.nih.gov/- International Medical Library / National Library of Medicine
7. https://www.thelancet.com/- The Lancet
8. https://www.rcog.org.uk/- Royal College of Obstetricians & Gynecologists
9. https://www.npwh.org/- Nurse practitioners in women's health
10. http://moz.gov.ua- Ministry of Health of Ukraine
11. www.ama-assn.org– American Medical Association /American Medical Association
12. www.who.int- World Health Organization
13. www.dec.gov.ua/mtd/home/- State Expert Center of the Ministry of Health of Ukraine
14. http://bma.org.uk– British Medical Association
15. www.gmc-uk.org- General Medical Council (GMC)
16. www.bundesaerztekammer.de– German Medical Association
17. www.euro.who.int- European Regional Office of the World Health Organization