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EXACERBATIONS OF THE USE OF SELENIUM-CONTAINING DRUGS IN PREGNANT WOMEN IN THE PREVENTION OF FETOPLACENTAR DEFICIENCY

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Abstract
Pre-term childbirth remains one of the most pressing problems of modern obstetrics, and this is about 11% of the world.Preterm labor is said to stop prematurely during the gestational period from the 22nd week to the 37th week of pregnancy.FPY , which occurs with a violation of the placenta process and leads to the underdevelopment of the placenta, is one of the causes of premature birth. Therefore, at present, it is very important to develop modern diagnostic methods and apply preventive measures, which will allow you to identify pathological changes in the fetoplacentar complex at the initial, pre-clinical stage of the disease.

Introduction

Complications from fetoplatcentar insufficiency average 20-30% and 23% cause premature births. In the pathogenesis of Fetoplacentar insufficiency, there is a violation of fetoplacentar blood flow, a violation of the metabolic, trophic, hormonal functions of the placenta. Fetoplacentar insufficiency is manifested by various extragenital and gynecological pathologies from the fetus and placenta, as well as a violation of the circulatory system of the placenta, which develops due to complications of pregnancy.Fetoplacentar insufficiency is manifested by various extragenital and gynecological pathologies from the fetus and placenta, as well as a violation of the circulatory system of the placenta, which develops due to complications of pregnancy.After the egg is fertilized, the egg and sperm become embryos. From approximately the 9th week of pregnancy, it is called a fetus.After fertilization, the embryo passes from the fallopian tube to the uterus for 4 or 5 days and binds itself to the uterine lining, which is rich in blood vessels. That is, with the help of trophoblast cells and spiral vessels of the uterus, the placenta is formed to form cataledones . From there, it receives the nutrients it needs to grow through the blood and continues to grow.At this stage, the so-called embryo.

Surrounded by an amniotic shell, the fetus is protected in the uterus. 3 stages of fetal development: 1. Germinal (2 to 4 weeks) - begins with fertilization and involves implantation 2. Embryo (from 4 weeks to 10 weeks) - important organs and body structures are formed.3.Growth until the end of the Fetal period (from the 11th week until birth) - fetal organs continue to develop

The fetus begins to develop from 4 weeks of age, the child's thyroid gland as well as the thymus (ayrisimon gland). In it, T lymphocytes and B lymphocytes begin to form.From the 4.5 week, the heart begins to beat. From the 5th week, brain tissue begins to form.By the 8th week, the kelip

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hand legs are formed. since the synapses are formed from sensory excuses from the 17th week, the nucleus of the baby's auditory tube is formed at the 7th - 9th week.For this reason, there is a possibility that the mother's living environment makes the attitude of those around her feel childlike. At the 24th week of the fetus, the sensitivity of the sensory organs is formed. 26-week kelip peripheral perception is fully formed. At the age of 12-16 weeks, the process of synthesis of sex organs and sex hormones occurs . At the same time period ,it is reasonable to refrain from consuming harmonic means (Dufaston, Ultrajestan).At the 28th week, the baby's main organ systems are now fully developed. Their lungs are mature enough to breathe air, producing a surfactant that helps the lungs expand and contract properly. They will have a good chance of surviving prematurely born, they will need help to breathe and will be kept in control for a certain period of time. At 38 weeks, the full respiratory system will be ready for childbirth.

Selenium is an element with specific catalytic properties that form active selenol centers and make up about 30 eukaryotic proteins [1]. Based on the proportion in the genome of frequent and rare protein genes, it is estimated that there are up to 100 selenium-containing proteins.High biological activity of organic forms of selenium-amino acids, their unique antioxidant activity, the ability to protect against cancer, heart and neurogenic diseases (Alzheimer's disease, Parkinson's disease),the occurrence of the ferraptosis process .The amount of selenium in plant foods and primarily in bread products varies depending on the selenium content in the soil where this plant grows. Selenium is not synthesized in a living organism, so it must be supplied externally with food (organic form) or medicines (inorganic form). Digestion of the human body the inorganic form of selenium is very small and is 10%, the selenium contained is better absorbed from animal products (30%) and its plant form is most fully absorbed (up to 98%). It should also be noted that inorganic selenium is the most toxic in overdose [2]. Selenium is part of the active center of glutathione peroxidase (the main endogenous antioxidant – the enzyme glutathione biosynthesis), as a result of which it has a pronounced antioxidant effect.

Excessive oxidative stress has a significant effect on the formation of gestational pathologies, as it accelerates cell death in various tissues(ferraptosis) causing fetoplacentar insufficiency. Providing selenium is very important to start n at the stage of preparation for pregnancy. Preparing a woman for conception

this is due not only to the restoration of foci of infection, but also to the support of antioxidant microelements to increase the survival and safety of gametes. Selenium especially protects female and male gametocytes. maybe even e with Selenium

Selenium during pregnancy is an active catalyst in the synthesis of the antioxidant system glutathione peroxidase. With a lack of selenium in the body of a pregnant woman, the absorption of fats is disrupted, a deficiency of fat-soluble vitamins, for example, vitamin E, metabolism is weakened. Selenium deficiency increases towards the end of pregnancy; a low selenium mark is manifested by a decrease in plasma glutathione peroxidase enzyme activity. Selenium deficiency is exacerbated in the third trimester of pregnancy. The deepest deficiency was reported in women who were initially underserved with Selenium during pregnancy. Selenium is an important synergist of iodine. Iodine is necessary for the formation of thyroid hormones thyroxine (T4) and triiodothyronine (T3). Deficiency of thyroid hormones leads to developmental abnormalities during gestation and slowed fetal growth.[3] Selenium is needed to maintain the ferroptose-

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resistant activity of GPX4, and replacement of selenocysteine with cysteine makes cells sensitive to ferroptosis. The main role of the fetoplacentar system in fetal development, fetal growth, maternal-fetal interaction, maternal homeostasis and adaptation to injury during pregnancy play a central role in severe complications in the immune system, such as delayed fetal growth, preeclampsia, premature birth, fetal vascular system . It is important to note that several pieces of evidence support the assumption that ferroptosis may play a major role in placenta dysfunction based on the underlying diseases of pregnant women . In the Pheto-placenta system, it usually manifests itself in early pregnancy from hypoxia to reoxygenation and later as a result of premature uterine contractions. Disorders of hypoxia-reoxygenation are associated with the pathogenesis of placental dysfunction.Placental trophoblasts are rich in iron because it is actively transferred to the developing fetus through the placenta) trophoblastic lipid peroxidation has been noted when the placenta is damaged, and low levels of glutathione peroxidase 4 (GPX4), the main enzyme that protects cells against the accumulation of harmful Hp species, are PL and ferroptosis, manifested by dysfunction of the human placenta and preeclampsia. Inactivation or absence of GPX4 leads to the accumulation of lipid peroxides, regarded as a signal of ferroptotic cell death. Thus, a decrease in the amount of GPX4 is an important stage of ferroptosis. Lipids play a crucial role in the energy supply and structure of the intracellular membrane system. Oxygenation of phospholipids (FL) (e.g. phosphatidylcholine, cardiolipin) contributes to cell ferroptosis. Pregnancy increases the need of the female body for all important microelements. However, many women become pregnant in a state of mineral deficiency.Not only iron, but also chromium, selenium deficiency the normal supply of chromium requires the normalization of carbohydrate and lipid metabolism. Chromium also has an immunomodulatory, antiviral effect, prevents excess weight gain (this is especially important in the ii half of pregnancy), and the appearance of malformations is reduced. Selenium is essential for nutritional support, starting from the pre-pregnancy period and being important for the Prevention of pregnancy duration, lipid metabolism and cholestasis disorders, and is also important for the functioning of the thyroid gland.

Thus, in the thyroid gland (thyroid gland), several glutathione peroxidases (GPx1, GPx3 and GPx4) are expressed, which are involved in the exchange of thyroid hormones and protect cells from the harmful effects of hydrogen peroxide (H $.o_2$) and free radicals. Each glutathione peroxidase is capable of returning potentially hazardous reactive oxygen species (e.g. H $.o_2$ and lipid hydroperoxides) to harmless compounds (Water and alcohol), preventing the formation of new free radicals. Glutathione peroxidase is a Selenium-dependent enzyme, so its activity directly depends on the selenium content in the blood. Selenium deficiency leads to a decrease in its activity and the introduction of selenium leads to an increase in the synthesis of GPX4. With a deep deficiency of selenium, the synthesis of these proteins does not occur. Of all the Selenium-dependent proteins in the human thyroid, plasma glutathione peroxidase (GPx3) is most actively expressed (synthesized), which determines the high selenium content in this organ. In the absence of TSH (Thyroid-Stimulating Hormone), the secretion of GPx3 by the tyrocytes (epithelial cells covering the thyroid follicles) leads to a decrease in the amount of H2O2 present for the memorization reactions of hydrogen peroxide. Conversely, in the presence of Tsh, GPx3 activity decreases, resulting in an increase in the amount of available H2O2. At the same time, the concentration of GPx3 within the Tyreocytes increases, thereby increasing the protection against

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oxidative stress caused by the synthesis of thyroid hormones. With selenium deficiency, glutathione peroxidase activity decreases, as a result of which excess H2O2 accumulates and TPO (tyreoperoxidase) activity increases. This confirms that the glutathione peroxidase system occupies a central place in the process of memorization, and the intrathyroid composition of selenium determines its activity.[2] Molybdenum is necessary to prevent anemia in pregnant women.The drug Vitrum prenatal Forte contains vitamins with an antioxidant Resource (A, E, C, B2, B6,PP, β-carotene) and antioxidant elements: iodine, manganese, copper, zinc, iron. An important feature of the drug is the presence of chromium, selenium and molybdenum in it.Focusing on this can be enriched with nutrients from the early periods of deficiency prevention. Conclusion. Low titer of glutathione peroxidase 4 in pregnant women at risk of premature labor is a contributing factor to the course of ferroptosis in trophoblasts , another important cause that contributes to fetoplacentar insufficiency. Premature birth due to fetoplacentar insufficiency remains one of the most important medical and social problems . Problems with the birth of a large number of premature babies, among which perinatal morbidity and mortality are considered to be a risk factor. Doppler is made using early diagnosis and based on the result of blood biochemical tests it is important to prevent these conditions, identify them early and take the necessary measures. So do the forecasting of fetoplatcentar deficiency in fetal women at risk of premature birth of pregnancy, in order to avoid negative complications at different periods of time, it is recommended: to carry out dopplerography and general labarator, biochemical (GPX4) examinations in fetal at 22-34 weeks of age ; monitoring these patients once a week on an outpatient basis the patient's satisfactory condition, satisfactory indicators determine the condition of the fetus and the absence of complications of pregnancy; limit physical activity; use of antioxidant therapy; selenium-containing Vitrum perenatal fotrte, Tocophetol acetate, Omega Q10-preserving vitaminotherapy; use of amino acid-preserving metabolism-enhancing Tivortin, Actovegin mediators; use of progesterone-containing drugs; taking tocolytics, the use of glucocorticosteroid therapy in cases of preterm labor helps to achieve an effective result .

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