

**THE EFFECT OF PREECLAMPSIA ON THE DEVELOPMENT OF
HYPOXIA IN THE FETUS**

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Resume,

A serious problem remains in the focus of obstetrics and neonatology – fetal hypoxia, which is closely related to preeclampsia syndrome. Despite the progress in the provision of medical care, this factor continues to occupy a leading position among the causes of infant mortality.

In these cases, the characteristic pathogenetic mechanisms are profound abnormalities of hemostasis and lipid metabolism disorders. In order to study this problem, a comprehensive clinical and laboratory analysis was conducted, including the following groups: the first - healthy pregnant women (n=16), the second – with moderate preeclampsia syndrome (n=31) and the third group – women with severe form of the disease (n=18).

The study analyzed the parameters of hemostasis, blood lipid composition in pregnant women, as well as the state of the vascular network of the umbilical cord of newborns. The study revealed significant changes in the lipid metabolism of both maternal blood and the placental system in preeclampsia. Significant hemostasis disorders occur in the body of pregnant women with this syndrome.: The external and internal coagulation pathways are activated, which leads to an increase in fibrinogen levels (hyperfibrinogenemia).

These pathological processes lead to serious disorders of the fetal-placental circulation, resulting in hypoxia in the fetus. The situation becomes especially critical in severe preeclampsia, where the severity of disorders reaches maximum values and has the most negative effect on the condition of newborns.

Key words: preeclampsia, fetal hypoxia, fibrinogen- lipid metabolism.

PREEKLAMPSIYANING HOMILADA GIPOKSIYA RIVOJLANISHIGA TA'SIRI

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Rezyume,

Homiladorlikning asosiy asoratlaridan biri preeklampsi bo'lib, u homiladorlikning 20 xaftaligidan keyin 5% hollarda yuzaga keladigan o'ziga xos sindromdir. Ushbu asorat onalar va yangi tug'ilgan chaqaloqlarning kasalliklari va o'limining asosiy sababidir.

Ilmiy tadqiqotlar shuni ko'rsatadiki, angiogen va antiangiogen omillar o'rtasidagi muvozanatning buzilishi preeklampsi patogenezida rol o'ynaydi.

Klinikaga kirishda lipoperoksidlanish faolligi, antioksidant tizim, azot oksidi metabolitlari darajasi va fosfolipaza A2 faolligi, shuningdek, homila kindik qonidagi bir qator ko'rsatkichlar o'rganildi. Natijalar shuni ko'rsatdiki, har qanday darajadagi preeklampsiyada membrana beqarorligi bilan bog'liq jarayonlarning faollashishi, shuningdek, plazmadagi azot oksidi kontsentratsiyasining pasayishi kuzatiladi, bu sindromning rivojlanishiga yordam beradigan endotelial disfunktsiyani ko'rsatadi.

Xuddi shu naqsh kindik qonida ham kuzatiladi. Patogenetik o'zgarishlarning ushbu spektri preeklampsiyada xomilalik gipoksiya rivojlanishi uchun muhimdir. Kalit so'zlar: preeklampsi, gipoksiya, homila, homiladorlik.

Kalit so'zlar: preeklampsiya xomilalik gipoksiya fibrinogen lipid almashinuvi.

ВЛИЯНИЕ ПРЕЭКЛАМПСИИ НА РАЗВИТИЕ ГИПОКСИИ У ПЛОДА

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Резюме,

Одним из ключевых осложнений беременности является преэклампсия, представляющая собой специфический синдром, возникающий в 5% случаев после 20 недель гестации. Это осложнение является главной причиной заболеваний и смертности матерей и новорожденных.

В научных исследованиях отмечается, что нарушение баланса между ангиогенными и противангиогенными факторами играет роль в патогенезе преэклампсии.

При поступлении в клинику изучали активность липопероксидации, антиоксидантной системы, уровень метаболитов оксида азота и активность фосфолипазы А2, а также ряд показателей в пуповинной крови плодов. Результаты показали, что при преэклампсии любой степени наблюдается активация процессов, связанных с мембранной нестабильностью, а также снижение концентрации оксида азота в плазме, что указывает на эндотелиальную дисфункцию, способствующую прогрессированию синдрома.

Такой же паттерн наблюдается и в пуповинной крови. Этот спектр патогенетических изменений является значимым для развития гипоксии плода при преэклампсии.

Ключевая слова: преэклампсия, гипоксия, плод, беременность.

Relevance. The main factor in Perinatal brain damage is hypoxia-intrauterine and intranatal [2,4,5]. Intrauterine hypoxia can occur due to insufficient oxygen saturation of the blood, decreased hemoglobin levels in the blood, impaired blood flow, and disorganization of oxidation processes in fetal tissues. According to the WHO, one of the main causes of perinatal disease and death of the fetus is preeclampsia (gestosis).

Despite the development of Medicine, in particular obstetric and gynecological support, the issues of preventing fetal injury with hypoxic properties in preeclampsia have not been sufficiently resolved[3] Therefore, the difficulty in correctly choosing adequate regimens for the treatment (prevention) of fetal hypoxia with preeclampsia in pregnant women is largely independent of sufficient information about the pathological processes underlying the development of this terrible complication[1,4].

This work is devoted to the most important issue of obstetrics.

The purpose of the study. Assess the role of lipid metabolism disorders, the structural and functional state of hemoglobin and fetal-placenta blood flow in the development of fetal hypoxia with preeclampsia of different weights.

Research methods and materials. To achieve the goal and solve the problems posed at work, 95 patients were selected by the method. A comparison group of 20 healthy pregnant women with a physiological course of pregnancy was identified.

The values of the studied indicators obtained in the control group were used as physiological normal values as the starting point of comparison. A core group of women with preeclampsia, consisting of 75 patients, was also allocated.

Research results. Symptoms of chronic intrauterine fetal hypoxia in pregnant women with preeclampsia (p=75) are reported in 44%, of which significant proteinuria (mild preeclampsia) is found in 28% of pregnancy - induced AG (p=25), with moderate preeclampsia (p=25)-44%, with severe preeclampsia (p = 25) in 60%, with impaired blood circulation in the Level II fetal-placenta complex respectively 28, 32 and 60% respectively.

One of the most important factors that leads to impaired blood flow in the placenta-fetal system is the phenomena that stabilize the membrane in the cell structures of blood vessels in the umbilical cord and erythrocytes of umbilical cord blood due to the over-amplification of the lipid peroxidation process and the activation of phospholipases.

In the fetuses of pregnant women with preeclampsia, in comparison with the fetuses of healthy pregnant women, with the raman-accumulation of hemoglobin in the umbilical cord blood, significant structural and functional modifications of hemoglobin are detected, an increase in the relative amount of oxyhemoglobin, a decrease in the ability of hemoglobin to bind ligands, an increase in the ability of hemoglobin fluctuations in hemoglobin methine bridges are associated with the severity of preeclampsia.

Exacerbation of fetal hypoxia symptoms in pregnant women with preeclampsia is due to structural and functional changes detected by the tissues of the vessels in the umbilical cord and erythrocytes of the umbilical cord blood, associated with impaired fetal-placental blood flow and associated with the severity of preeclampsia.

Structural-functional-metabolic changes determined by the tissues of the vessels in the umbilical cord and erythrocytes of the umbilical cord blood indicate the occurrence of processes associated with a violation of the organization of cell membranes in the tissues of the fetus, as well as in the body of a pregnant woman with preeclampsia, which in turn determines the main pathophysiological and clinical picture of hypoxia.

Conclusion. Studies have shown that in the development of fetal hypoxia in pregnant women with preeclampsia of different weights, a violation of lipid metabolism from the tissues of blood vessels and erythrocytes in the umbilical cord, as well as changes in the structural and functional state of hemoglobin in the umbilical cord blood, plays an important role.

The information obtained is the basis for the development of new schemes for the prevention and treatment of fetal hypoxia in pregnant women with preeclampsia.

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