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THE IMPORTANCE OF DIAGNOSING PREECLAMPSIA AND THE DEVELOPMENT OF HEART FAILURE

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Preeclampsia, formerly called "toxycosis" or "gestosis", is a complication of pregnancy characterized by high blood pressure and the presence of significant levels of protein in the urine. The frequency of this complication of pregnancy is about 2%. As a rule, the first signs of preeclampsia appear after the 20th week of pregnancy. One of the most significant manifestations of preeclampsia is a decrease in the intensity of blood flow from the mother to the placenta, which leads to insufficient supply of oxygen and nutrients to the fetus. This condition can be associated with serious short-term or long-term complications in both mother and baby.

The aim of the study was to analyze the contemporary data about the role of natriuretic peptide B-type at pregnancy. For this, the recent scientific publications were analyzed.

Natriuretic peptide B-type (BNP) belongs to the family of peptide hormones, similar in structure and involved in the regulation of blood volume, blood pressure (a powerful vasodilator) and water-salt balance of the body. BNP is produced by the cells of the ventricle - cardiomyocytes in the form of a precursor, proBNP, in response to overload of the heart by volume or pressure. Under the action of a specific protease, proBNP is cleaved into two fragments - a physiologically active C-terminal fragment (BNP77-108) and an N-terminal fragment (NT-proBNP). All three peptides - BNP, NT-proBNP and proBNP - are present in the bloodstream. B-type natriuretic peptides are secreted in the ventricles of the heart, directly reflecting the load on the myocardium. With the development of heart failure, the level of synthesis and secretion of BNP and NT-proBNP increases significantly and can reach 10 ng / ml in the case of BNP and several tens of ng / ml in the case of NT-proBNP. The importance of determining BNP and NT-proBNP for the diagnosis and treatment of congenital heart disease in infants and children in the first months of life is currently widely discussed.

The level of NT-proBNP in newborns with congenital heart defects is found to significantly increase compared with the control group. In neonates with congenital heart disease with concomitant low left ventricular contraction, NT-proBNP levels are significantly elevated compared with infants with congenital heart disease. Thus, elevated levels of NT-proBNP can be used to diagnose congenital heart disease in newborns. Measurement of NT-proBNP or BNP cannot replace cardiac imaging techniques (including echocardiography, angiography, and magnetic resonance imaging), but provides additional independent and very important information for assessing neonatal heart function.

Attention is now drawn to the diagnostic value of determining NT-proBNP and BNP during preeclampsia. Therefore, this issue remains open today.

Bakun O.V.

ROLE OF GENITAL ENDOMETRIOSIS AND ASSOCIATED DISEASES ON INFERTILITY ACCORDING TO RETROSPECTIVE ANALYSIS OF CASE HISTORY

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The problem of infertility is of great socio-medical importance, due to the sharp decline in birth rates in the current crisis. Despite many years of research, endometriosis remains a disease of unknown etiology. Its prevalence is constantly growing and is 15-50% of the total female population of reproductive age. A high social significance of the endometriosis problem is

We analyzed the case histories of patients diagnosed with external genital endometriosis and adenomyosis, who were treated at a medical infertility center during the period of 2017-2019.

In women with infertility associated with endometriosis, pain was found to occur in 43 patients (61.16%). The dependence of the pain syndrome on menstruation was registered (94% of cases). According to case histories, it was found that 42 women had no pregnancies in the past. They were diagnosed with Infertility I, which constituted 66.6%. According to the results of cytological examination, type II was found to predominate in 28 women (73.6%), which indicated an inflammatory process. According to repeated ultrasound data, internal genital endometriosis was not suspected, so it is not reasonable to rely on ultrasound data as an additional method of research, and this requires the use of new diagnostic methods.

Thus, modern medicine must continue to study in detail the diseases that cause infertility. Scientists should investigate the causes of infertility in order to further prevent and successfully treat them.

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CHANGES OF LEVELS OF MELATONIN, CYTOKINES AND PLACENTAL GROWTH FACTOR IN THE UMBILICAL BLOOD TAKEN FROM WOMEN WITH FETAL GROWTH RESTRICTION

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The aim of the study was to investigate changes in melatonin, cytokines' and placental growth factor's concentrations in umbilical blood in case of presence of pathology of pregnancy and childbirth associated with placental dysfunction, manifested by fetal growth restriction.

Changes in melatonin, cytokines' and placental growth factor's (PIGF) levels in umbilical cord blood were studied in 14 mothers with placental dysfunction (PD), which was realized in the form of intrauterine growth restriction syndrome (IUGR). The diagnosis was set on the basis of ultrasound fetometry at a gestational age of 36 weeks. The control group consisted of 13 women with physiological gestation and labor. Levels of melatonin, placental growth factor and cytokines were monitored in venous umbilical cord blood, which was collected during the third period of labor immediately after birth. After the pulsation of the umbilical cord had stopped, it was cut, and blood from the placental end of the umbilical cord was taken to a Vacutainer vacuum tube.

The results of the study of melatonin's, cytokines and PIGF's levels showed that in umbilical cord blood taken during the third period of childbirth in a woman with placental dysfunction, there was a significant decrease in melatonin concentrations comparing to mothers with physiological pregnancy: 7.50 pg / ml (95% confidence interval for median 3.08 – 13.40 pg / ml) versus 14.60 pg / ml (95% confidence interval for median 9.58 – 23.79 pg / ml, $p = 0.0101$). There were no significant differences between the groups in the levels of pro-inflammatory and anti-inflammatory cytokines in umbilical cord blood. Instead, we found that the concentration of PIGF in umbilical cord blood taken to the mother with PD, which manifested itself in the form of IUGR, was 1.57 times lower comparing to mothers with physiological pregnancy: 99.15 pg / ml (95% confidence interval for the median 84.38 – 153.92 pg / ml, in the control group – 155.30 pg / ml (95% confidence interval for the median 98.78 – 354.21 pg / ml, $p < 0.05$).

Thus, the levels of melatonin in umbilical cord blood taken during the third period of labor from mothers whose pregnancies were complicated by IUGR were significantly lower comparing to mothers whose pregnancies had no complications. Therefore, in the blood of the fetus in the case of placental dysfunction, the level of melatonin is also reduced. The pineal gland of both the fetus and the mother does not compensate for the melatonin deficiency that occurs in case of placental dysfunction. In addition, placental growth factor is likely to decrease in umbilical cord blood, and not only in the venous blood of the mother, as we established. Although no statistically significant changes in the cytokines' concentrations were found (possibly due to the small sample size), we found that in placental dysfunction, melatonin correlates moderately with one of the major