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CHANGES IN SOME SYSTEM INDICATORS IN PREGNANT WOMEN WITH GESTOSIS

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Abstract
It is well known that gestosis is one of the most dangerous complications of pregnancy and childbirth. Eclampsia is the direct cause of maternal mortality, ranging from 0.21 to 1.4%. However, in Uzbekistan, one of the most disadvantaged countries in this regard, maternal mortality from gestosis increases to 17%, and perinatal mortality to 50%. In the structure of maternal mortality, gestosis firmly occupies the second place and accounts for 24%. The birth of a healthy full-term child with a real serious pathology is observed only in 50-56% of cases. Therefore gestosis remains one of the factors determining the level of perinatal mortality. The indicators of the latter in some regions are in the range of 11.2 – 44.4%, and in preeclampsia and eclampsia they can reach 60%. More than 30 theories have been proposed to explain the etiology of gestosis, however, the nature of their development remains unclear.

Introduction

A brief analysis of modern theories of the pathogenesis of gestosis shows that this complication in pregnant women is not a single disease with a single cause, but it corresponds to a clinical syndrome with multiple causes, each of which activates a common mechanism leading to endothelial damage, vascular spasm and hypertension, with damage to the circulatory bed being the main feature of gestosis. One of them is initially determined by a violation of uteroplacental circulation, followed by the development of peripheral vascular spasm, and then hypovolemia. Another launcher The mechanism of maladjustment syndrome is determined by background extragenital pathology. Currently, one of the popular concepts of the development of gestosis is the concept of antioxidant deficiency. It has been proven that in this disease there is a significant increase in lipid peroxidation and an increase in antioxidant deficiency, and the severity of these changes is in line correlation with a high degree of reliability and with the severity of gestosis. Progressive antioxidant deficiency with balance disorders prostacycline and thromboxane "A-2" lead to the disintegration of humoral and cellular defense mechanisms. In turn, the result of these disorders are changes in the circulatory link of the homeostasis of the hemostatic system, cardiac activity, water-electrolyte balance, oxygen supply of blood and disorders in the metabolism of erythrocytes. Thus, the analysis of the literature data indicates significant disorders that may be present in the body of a woman with gestosis. This dictates the need for a more in-depth study of systemic changes in gestosis in pregnant women.

The purpose of this study is to identify systemic changes in the body of pregnant women with gestosis.

MATERIALS AND METHODS OF RESEARCH

A total of 142 pregnant women who underwent gestational gestosis of varying severity were examined. The control group consisted of 25 practically healthy pregnant women with a physiological course of gestation. In 82 pregnant women with gestosis and in 25 women of the control group, along with clinical laboratory data, we studied:

1. Indicators of circulating blood volume (BCC) by the Evans plasma hematocrit method.
2. Indicators of central hemodynamics – by Kubichek tetrapolar rheoplethysmography using the RPG-2-02 prefix and an electrocardiograph 6-NEC. Using indicators of the body surface area, the shock (SI) and cardiac index (CI) were calculated.
3. Indicators of partial pressure of gases and oxygen saturation of blood – on the BMS-3 Mk-2 gas analyzer of the Radiometer company.
4. Indicators of oxygen transport function of blood – by calculation methods.
5. The level of 2,3-diphosphoglycerate (DPH) in erythrocytes was determined by the Dyce chemical method.
6. Blood plasma electrolytes on the automatic ion-selective analyzer "Microlit" (Finland).

The obtained research results were processed by the method of variation statistics using the Student's reliability criteria. Another 60 pregnant women with gestosis underwent blood flow studies in the placenta-fetus system using an Alloka-650-SSD ultrasound scanner equipped with a pulsating wave Doppler unit (Hz frequency filter, 3.5 MHz convection sensor).

THE RESULTS AND THEIR DISCUSSION

In the third trimester of uncomplicated pregnancy in all women, the BCC exceeded 4,500 ml., averaging 4,922±112 ml. or 80.3±0.8 ml/kg. Individual indicators ranged from 76 to 85 ml/kg. Almost two thirds or 64.3% of the blood volume is plasma (51.7±0.5 ml/kg), and the globular volume is slightly more than one third or 35.7% (28.2±0.3 ml/kg). The concentration of sodium ions in blood plasma was 150± 0.5 (in the control group 140.4±0.7 mmol/l), and the concentration of potassium ions was 4.2±0.1 versus 4.8±0.1 mmol/l in the group of healthy pregnant women.

At the same time, CI was equal to 3.0±0.1 l/min/m^2 with individual fluctuations from 2.7 to 3.5 l/min/m^2, and UI was 31.5±0.8 ml/m^2 with individual fluctuations from 28.4 to 38.8 ml/m^2. With an average blood pressure level of 88.5±1.4 mmHg, the total peripheral vascular resistance (OPSS) was 1525.4±39.6 din sec cm5 , oxygen blood capacity (CEC) is 15.0±0.5 ml/dl, effective oxygen transport (ETA) is 491.1±16.5 ml/min/ m^2 and real oxygen transport (RTK) is 221.5±10.0 ml/min/ m^2.

In case of pregnancy complication by gestosis, indicators of circulating blood volume,compared with similar parameters of healthy pregnant women, there were reduced to 70.2±0.6 ml/kg ($p<0.05$). Hypovolemia was caused by the absence of an increase in plasma volume (40.5±0.7) and a slight decrease in globular volume (30,2±0,4). The indicators of SI and SI, compared with those of healthy pregnant women, were reduced to 2.0±0.3 l/min/ m^2 and 21.8± ml/ m^2 ($p<0.05$). In spite of hemoconcentration and increased to 18.1±0.5 ml/dl ($p<0.05$) blood CEC, the indicators of effective and real oxygen transport were reduced to 362.0±16.0 and 165.3±13.5 ml/min/m^2

(p<0.01). At the same time, the level of the erythrocyte metabolite 2,3-DPH it turned out to have increased to 7.3±0.2 versus 6.6±0.1 mmol/l. The analysis of Dopplerometric parameters showed that more than half of pregnant women (59.9%) had hemodynamic disorders in the placenta-fetus system. If pregnant patients in the second trimester have the above-mentioned disorders They were detected in 18.1% of cases, then in the third trimester – in 41.4% of cases. The frequency and severity of blood flow disorders in the mother-placenta-fetus system had a direct effect on the growth and development of the fetus, causing a syndrome of delayed development. In general , "isolated" disorders in uteroplacental blood flow were found in every second pregnant woman with gestosis, violations of fetoplacental blood flow - in every fifth (21.4%) and violations of uteroplacental-fetal blood flow – in almost every third pregnant woman (26.2%).

CONCLUSIONS

1. In pregnant women with complications of gestation with gestosis, there are distinct violations in the indicators of circulatory, hemodynamic and oxygen transport links of homeostasis.
2. A characteristic feature of the course of pregnancy in patients with gestosis is the frequent development of placental insufficiency, which is confirmed by the presence of disorders in the utero-placental-fetal blood flow system.
3. Indicators of central hemodynamics and oxygen transport function of the blood can be criteria for assessing the severity of the condition of a pregnant woman with gestosis, and It is advisable to use dopplerometric indicators to assess the state of uteroplacental-fetal blood flow.

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