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Course of Pregnancy and Outcome of Birth Complicated with Pre-Eclampsia

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Abstract: A number of scientific studies are being carried out in the world to study preeclampsia and develop optimal tactics for determining cardiac, central hemodynamics and studying blood flow in the liver [1,2,10,12,14]. In modern obstetric practice, there is an increasing need to revise traditional approaches to diagnosis, treatment and improvement of pregnancy and childbirth outcomes. Of paramount importance are the issues of identifying high-risk groups for the development of preeclampsia, based on changes in the parameters of intracardiac, central and regional hemodynamics, which will reduce severe complications and prevent maternal and infant morbidity and mortality [3,5,7,13]. Currently, the problem of preclinical diagnosis of preeclampsia and prevention of its severe forms are carried out in the following priority areas: the study of intracardiac, central, regional and hepatic blood flow, which makes it possible to predict severe forms of preeclampsia depending on the dynamics of changes in these parameters; selection of corrective differentiated therapy for solving the management of pregnancy and childbirth based on monitoring of blood flow indicators, improving the ability to predict the intra- and postnatal state of the fetus, based on indicators of intracardiac, central and regional hemodynamics [4,6,8,9,11].

Keywords: Doppler, preeclampsia, liver blood flow.

Purpose of the study: to determine the role and significance of monitoring intracardiac, central and regional hemodynamics in reducing perinatal and maternal losses in pregnant women with preeclampsia.

Materials and research methods. The object of the study were 290 pregnant women of the 2nd maternity complex in Bukhara for the period 2021–2023. Of these, 240 women with preeclampsia, 50 women with a physiological course of pregnancy, included in the control group. To study the nature of changes in central and regional hemodynamics, a comprehensive examination of pregnant women was performed in the II and III trimesters of pregnancy at 20–24 and 28–32 weeks of gestation. The subject of the study was blood serum, a comprehensive study of hepatic functions, LV dopplerography and liver doppler, uterofetal blood flow in the examined women. When performing a scientific study, general clinical and laboratory, functional (ultrasound, Doppler), biochemical, and statistical methods were used.

Research results. In order to study the characteristics of the course of pregnancy and the outcome of childbirth for the mother and fetus, 250 birth histories of women with preeclampsia were analyzed. 190 birth histories of pregnant women with mild and 60 with severe PE admitted to the city maternity hospital No. 2 of the city of Bukhara for the period 2020-2023 were analyzed. The average age of pregnant women was 26.2± years (ranging from 16 to 40 years). At the age of 30 and over, there were 26% of patients, primiparous - 36%, multiparous - 64%.When analyzing the course of pregnancy in 250 (100.0%) patients with PE, various complications were identified. Toxicosis of the 1st half was noted in 126 (50.4%) pregnant women, of which 56% had moderate and severe course, 44% required inpatient treatment. The threat of termination of pregnancy was detected in 26 (10.4%): in the first trimester - in 25%, in the second - in 45% and in the third - in 30% of patients. Anemia was detected in 225 (90.0%) pregnant women. A decrease in hemoglobin over 90 g/l was observed in 44 (17.6%) pregnant women (Fig. 1).'

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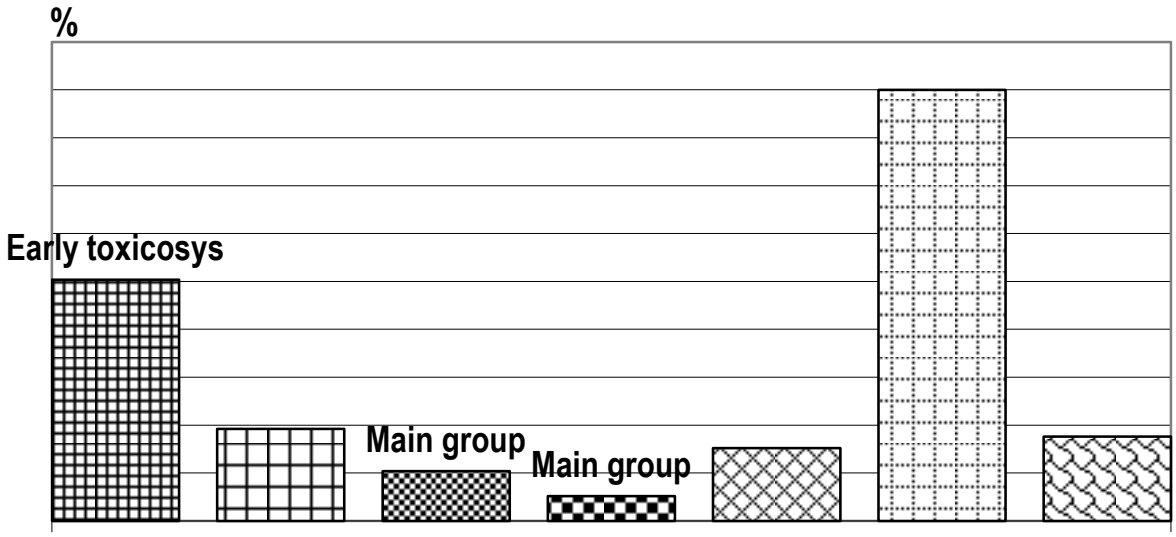

Fig. 1. Complications during pregnancy in women with preeclampsia (%)

Extragenital diseases were diagnosed: in 28 (11.2%) disorders of fat metabolism, in 56 (22.4%) chronic pyelonephritis in history, in 225 (90.0%) anemia, in 40 (16.0%) disorders thyroid function, 58 (23.2%) had chronic hypertension (Fig. 2).

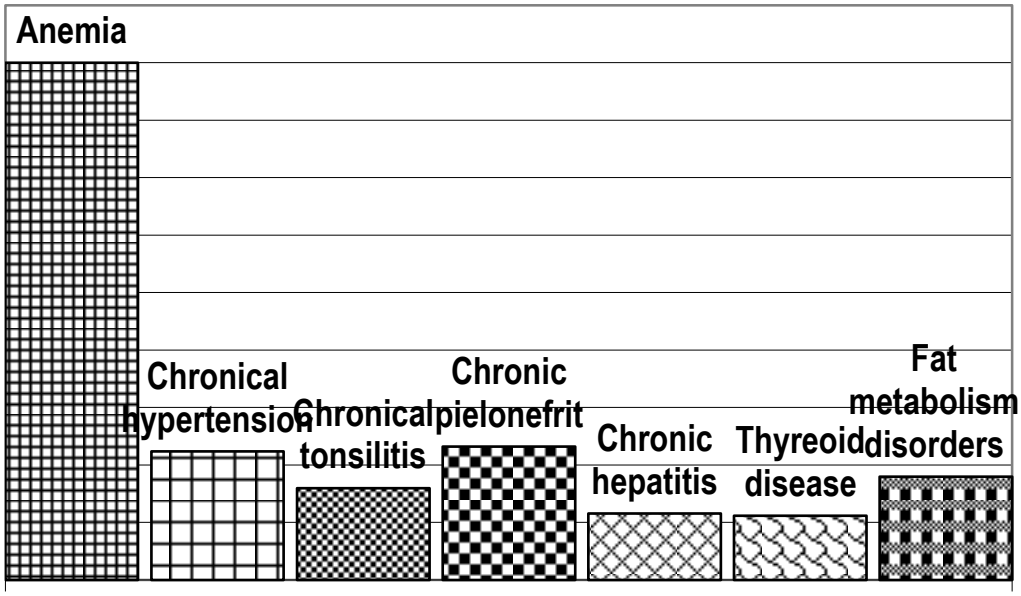

Fig.2. Extragenital diseases in the surveyed pregnant women of the retrospective group (%)

A history of gynecological diseases was detected in almost all pregnant women - 239 (96.5%), including ovarian-menstrual cycle disorders in 132 (52.8%), 58 (23.2%) had a history of infertility, 45 (18.0%) - inflammatory diseases of the pelvic organs (table 1).When analyzing the course of previous

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pregnancies in the majority of 200 (80.0%), it was noted that pregnancies proceeded with PE, 49 (19.6%) women were prematurely delivered by surgery, in 29 (11.6%), childbirth was complicated by primary postpartum bleeding, and in 19 (7.6%) the postpartum period proceeded with purulent-septic complications. When analyzing the time of onset of PE, it was found that mild PE was diagnosed at a gestational age of up to 34 weeks in 80 (32.0%) patients, more than 34 weeks in 60 (24.0%), and in the remaining 50 (20.0%) at 38 weeks or more.

Of the 60 pregnant women admitted to the hospital with severe PE, the gestation period corresponded to 32-34 weeks 35 (58.3%), more than 34 weeks 25 (41.7%), including 14 (23.3 %) of cases were diagnosed with eclampsia, and in 8 (13.3%) HELLP syndrome.In all women, pregnancy proceeded with complications, in 56.0% of cases hospitalization was carried out. Every third woman who later admitted with severe preeclampsia to the department of anesthesiology of resuscitation and intensive care (ARI) of the maternity hospital had previously been “treated” for PE and was discharged.

In 26.5% of cases, pregnant women were transferred to the ICU from the Department of Pathology of Pregnancy due to deterioration in PE, the rest (30.5%) were delivered from home, one of them with an attack of eclampsia. All patients, according to generally accepted diagnostic criteria, had severe PE. Complaints were made by 58.5% of women: headache was noted by 15 (25.0%) patients, dyspeptic disorders - 12 (20.0%), visual impairment - 8 (13.3%). The frequency of associated preeclampsia was 16 (26.7%). Monosymptomatic forms were not registered by us, in 85% of patients a triad of symptoms was noted.

A more detailed comparative analysis of the clinical picture of PE, delivery, and perinatal outcomes was carried out in two groups: the first group included patients with early onset PE (delivered from 30 to 36 weeks), the second group included patients with a later onset of PE (delivered from 37 weeks to up to 40 weeks).

In most patients, edematous syndrome was the starting point, then BP and/or proteinuria joined. In both groups, the frequency of pathological weight gain and visible edema did not differ significantly, however, in the second group, visible edema appeared on average 4 weeks later (29.2 and 34.1 weeks, respectively). In both groups, the incidence of widespread edema was 2 times higher than that of local ones.The frequency of arterial hypertension (AH) in both groups was 100% and 98.2%, respectively. Pregestational hypertension, with an average of 15%, was higher in the first group. On average, the onset of gestational hypertension in the second group lags behind by 7 weeks (29.5 and 36.5 weeks, respectively). In the first group, the frequency of systolic blood pressure (SBP), equal to 160 mm Hg. Art. and more, twice as high, and the frequency of diastolic blood pressure (DBP), equal to 110 mm Hg. Art. and more, 1.5 times higher than in the second group.

Proteinuria was not registered only in 4 pregnant women with severe PE. Proteinuria less than 0.3 g/l in the second group appeared 5 weeks later (28 and 33.5 weeks, respectively). Proteinuria of 0.3 g/l and above, which is usually interpreted as a sign of PE, appeared in both groups on average three weeks after starting proteinuria. The frequency of severe proteinuria (more than 3 g/l) is higher in the first group (36.4% and 25.8%, respectively).

Thus, a comparative assessment of semiotics in the two groups clearly demonstrates a significant difference in the average timing of the appearance of the main components of the PE triad, as well as a higher frequency of severe hypertension and proteinuria in pregnant women of the first group. In the group with early onset of PE, the incidence of a clinical variant with a sudden onset and a rapid rate of progression is higher. For patients of the second group, a clinical variant with a mild severity of symptoms, a slow rate of progression, and a sharp deterioration shortly before delivery is more typical.In the first group, the frequency of chronic placental insufficiency is higher (75.3% and 20.8%, respectively), chronic fetal hypoxia (45.3% and 10.8%), fetal growth retardation (39.5% and 14.7%) .

The duration of complex treatment and preparation for delivery of patients in the ICU varied from 3 hours to 6 days. Preterm birth (from 30 to 36 weeks) took place in 13.3%, term (from 37 to 40 weeks) - 61.4% of cases. Most of the patients - 42 (70.0%) were delivered by caesarean section, the rest - 18

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(30.0%) through the natural birth canal. The frequency of caesarean section in the group of premature births was 60.0%. The leading indication for CS is the need for delivery according to the severity of PE when the birth canal is not ready, as well as according to indications from the fetus. Type of anesthesia for abdominal delivery - MMA 52.0% and general endotracheal anesthesia was 48.0%.

Children (twins) were born: full-term - 38 (63.3%), premature - 22 (36.7%). The body weight of newborns varied from 1000 to 4000 g. The proportion of children weighing from 1000 to 1499 g was 42%, with a weight from 1500 to 1999 - 48%. Among premature babies, body weight corresponded to gestational age in only 10%. In the group of full-term children, on the contrary, low-weight children accounted for 22%, with normal weight - 78%. In the structure of morbidity of full-term children prevailed. There was no maternal death. Thus, all patients with PE had from 1 to 4 risk factors. In 26%, PE stratified against the background of extragenital pathology. Leading extragenital pathology: anemia, diseases of the urinary system, cardiovascular diseases, endocrine pathology. PE was manifested by various symptoms, different duration of their manifestation and rate of progression. Any form of PE can be very insidious, progress rapidly, and lead to the development of complications. The results obtained confirm the need to consider the onset of its development as an important criterion for the severity of PE. The most severe course with a rapid rate of progression and severe fetal suffering is observed at an early onset. The starting sign of PE in most cases was edematous syndrome. Based on the data obtained, it can be recommended that when deciding on the onset of the development of PE, the presence of visible edema dictates, as well as the appearance of even slight proteinuria. The retrospective analysis data we obtained demonstrates the acuteness of the problem of early diagnosis of PE, which requires the development of modern diagnostic methods for the effective selection of tactics for managing such a contingent of pregnant women, as well as for creating the most optimal conditions for protecting the health of the mother, as well as the birth of a healthy generation. The need for prognostic tests highlights the relevance of the problem of preeclampsia.

Conclusions. As the results of the study indicate, with the help of hemodynamic markers of the severity of PE and clinical and laboratory diagnostics, it would be possible to timely diagnose mild forms and, accordingly, prevent its transition to severe forms.

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