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A CONTEMPORARY VISION OF THE PROBLEM PREMATURE LABOR IN OBSTETRIC PRACTICE

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Abstract. The problem of premature birth is not only a medical, but also a social problem, since the birth of a premature baby, his illness and death are a serious psychological trauma. Women who have lost a child feel fear about the outcome of the next pregnancy, which leads to conflicts in the family, refusal of subsequent pregnancy. The lack of convincing data on the predictive value of the risk score for preterm birth has made it difficult for obstetricians to prepare the fetus for preterm birth using adequate and at the same time safe medications.

Keywords. medical, Premature birth, microbiome, hematogenous, perinatal, major obstetric syndromes.

Premature birth (PR) is one of the leading causes of neonatal morbidity and mortality in newborns around the world. Thus, according to WHO statistics, in the world 15 million children are born prematurely every year, and this number, unfortunately, is growing. The preterm birth rate varies from 5% to 20% of the number of children born. It should be noted that over 60% of preterm births occur in Africa and Asia. Moreover, 73% of children born less than 28 weeks or deeply premature die already in the first days of life [15]. It is also important that antenatal fetal death occurs 8-13 times more often than in full-term births.

Currently, preterm birth is commonly regarded as a syndrome in the implementation of which many mechanisms are involved [20]. The scientific paradigm for managing preterm birth today is that preterm delivery is the same process as term delivery, with the exception of the gestational age at which it occurs. Indeed, in both processes there is an increase in the contractility of the uterus and the opening of the uterine pharynx. However, according to the authors, the onset of timely labor occurs as a result of physiological activation of labor, while premature labor occurs as a result of pathological signaling and activation of one or more components of labor.

In modern obstetrics, "Great Obstetrical Syndromes" are distinguished, associated with pathology of placentation, which is caused by varying degrees of disturbance in remodeling and obstruction of the spiral arteries in the transition zone and in the myometrium. The spectrum of these complications includes miscarriage, fetal growth retardation, preeclampsia and premature rupture of membranes, late spontaneous abortions and premature placental abruption [20.6]. The term “major obstetric syndromes” was introduced to rethink the concept of obstetric disease. Such syndromes are characterized by: multiple etiology; long preclinical stage; the involvement of the fetus; the presence of clinical manifestations that are often adaptive in nature.

According to a number of authors [24], pathological processes associated with the syndrome of premature infants include: intrauterine infection / inflammation; ischemia of the uterus; overstretching of the uterus; abnormal allograft reactions; allergies; cervical insufficiency; various hormonal disorders; extragenital pathology in a woman.

Thus, according to Solt I. (2015) [23], the emergence of the concept of the human microbiome, along with the development of molecular diagnostic methods, led to an increase in the detection of bacterial communities that are directly related to maternal and fetal medicine, in terms of health and disease. The author believes this contributes to the understanding of adverse obstetric outcomes. While bacterial ascent from the vaginal tract is recognized as the main cause of intrauterine infection, preterm labor and low birth weight newborns, the microbiomes of the gastrointestinal tract, oral cavity and respiratory tract are involved in intrauterine infection of the fetus through hematogenous spread ... Transmission of the maternal microbiome to newborns, through vaginal delivery or by performing a caesarean section, affects health from birth to adulthood. According to Witkin S.S. (2015), ascending bacterial infection is associated with 40-50% of cases of PR [25]. The presence of bacterial vaginosis before 16 weeks of gestation increases the risk of PR by a factor of 2 [10].

Premature birth is the main cause not only of perinatal losses, but also of high morbidity and disability (up to 50%) of newborns [4, 14].

Numerous studies have shown that children born prematurely have an increased risk of developing metabolic pathologies, cognitive and behavioral disorders, and chronic diseases of the respiratory system. The etiology of this phenomenon remains not fully understood.

According to meta-analysis by Parkinson J.R. and co-authors [18], preterm labor is also associated with the features of metabolic syndrome at a later age. A marker of the syndrome can be the level of plasma low density lipoproteins. Elevated plasma lipoprotein levels in preterm young people may indicate a higher risk of atherosclerosis and cardiovascular disease later in life. Premature birth has also been associated with higher blood pressure in adulthood, with women more at risk than men.

It is now absolutely clear that preterm birth is the leading cause in the development of neurological disorders, autism, attention deficit hyperactivity disorder and many other pathological conditions in children [16].

Undoubtedly, an important factor in the management of patients with a threat of preterm birth is early diagnosis, which will allow timely medical intervention and targeted therapeutic treatment aimed at improving the results for both the mother and the fetus.

Well-known methods of diagnosing readiness for premature birth are: assessment of the state of the cervix according to transvaginal ultrasound [3]; point assessment of maturity of the cervix on the Bishop scale; colpocytological examination of a vaginal smear, which requires the presence of clinical diagnostic laboratories and a certain time to perform.

Various body fluids, including amniotic fluid, urine, saliva, blood (serum / plasma) and cervico-vaginal fluid, contain a large amount of proteins, putative biochemical markers that can cause or

reflect various pathophysiological disorders of pregnancy, including preterm labor [11 , 21]. An alternative marker for identifying women at risk of developing preterm birth is the use of Actim Partus rapid immunochromatographic tests. The method widely used today is based on the determination of phosphorylated protein-1, which binds the cervical phosphorylated insulin-like growth factor binding protein-1 in cervical secretions [8].

A number of foreign authors have suggested that the onset of preterm labor can be clarified in combination with the help of transvaginal ultrasound with measurement of the length of the cervix and determination of fibronectin (fFN). Under normal conditions, fFN is detected in cervico-vaginal secretions at very low concentrations. An increase in the level of fibronectin is one of the components of the labor process [9].

Measures to prevent premature birth include an integrated approach, and are determined by: gestational age, the condition of the mother and fetus, the presence of a whole fetal bladder, the degree of structural changes in the cervix [5,22]. The tactics of managing women with a threat of premature birth is aimed at prolonging pregnancy until the optimal time of delivery, correcting hormonal disorders, sanitizing the sources of chronic infection, and using an unloading obstetric pessary. When symptoms of a threat of premature birth occur, he uses drugs that suppress the contractile activity of the uterus, metabolic therapy, prevention of respiratory disorders syndrome, progesterone drugs. An important factor in the management of preterm birth is the correct assessment of the clinical situation, the correct choice of the method of delivery and pain relief, rational management of both labor and the postpartum period [13,22].

In the structure of morbidity and mortality, fetal respiratory distress syndrome reaches 54%. It is now recognized that corticosteroid medications given to women 24-34 weeks of gestation expecting premature birth not only accelerate the development of pulmonary epithelium in the fetus, but also induce maturation of other organ systems, which significantly reduces neonatal morbidity and increases the chances of a newborn for survival [5,17]. However, it is not recommended to conduct repeated courses of prevention of respiratory distress syndrome of the fetus, as this increases the risk of delay in the psychomotor development of the child and exacerbates the problems of his behavior [5,19].

At the same time, there is currently no statistically significant difference in the method of prescribing progesterone. The benefits of any regimen have not been confirmed and the optimal duration of progesterone use has not been determined [1,12,14].

Tocolytic therapy according to the national protocol is prescribed up to 34 weeks of gestation with cervical dilatation less than 3 cm, no amnionitis, preeclampsia, bleeding, and satisfactory fetal condition [7]. Conducting tocolytic therapy, helps to reduce the contractile activity of the uterus by relaxing smooth muscles, is an important obstetric intervention in the management of pregnant women with the threat of premature birth. The use of tocolytic drugs allows you to prolong and successfully correct this complication of pregnancy.

In the treatment of the threat of premature birth, β-adrenomimetics are widely used. In recent years, intravenous

administration of tractocil (atosiban), which is an oxytocin receptor blocker, has been used. There has been a positive effect from the use of the drug, which, according to a number of authors, helps to reduce the incidence of premature birth by 1.5 times [14, 22].

Today, preterm birth in obstetric practice is a complex medical and social problem that is the cause of neonatal morbidity and mortality, and affects the subsequent quality of life of children born prematurely. The current strategy for the management of infants born before term is aimed at early identification of the risk of neurological and cardiovascular diseases in the postpartum period, which can significantly improve the results of treatment of these diseases in the future.

Maintaining and assisting pregnant women with preterm birth is certainly associated with high material and economic costs. To provide modern obstetric care to women with this problem, timely and correct diagnosis of pregnancy complications is necessary in order to avoid unjustified medical interventions using adequate and at the same time safe medications to prepare the fetus for premature birth.

Conclusion. The main directions of research that are currently being carried out are aimed at improving the achievements of molecular and epigenetic studies, as well as improving methods for assessing the condition of the fetus, determining the degree of maturity of the cervix. The development of an identified risk profile of the patient with the described necessary targeted interventions can further serve as a basis for screening women with possible onset of preterm labor.

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