



OPTIMIZING PREVENTIVE MEASURES BY STUDYING THE FACTORS THAT CAUSE PREMATURE LABOUR AND THE MECHANISM OF THEIR EFFECT

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Abstract:

Preterm labour (PL) is one of the most significant problems in maternal and child health, which currently does not tend to decrease. The risk of death in premature babies is 25–35 times higher than in full-term babies. And stillbirth with PL is recorded 8–13 times more often than with timely births. The severity of complications associated with prematurity is inversely proportional to gestational age. In general, PL is responsible for up to 70% of perinatal mortality. PL were designated at the last FIGO Congress (2018) as a problem that has not been solved and cannot be solved by modern methods. The lack of scientific foundations not only for the etiology, but also for the pathogenesis of PL does not allow one to achieve practical results either in the prevention or in the treatment of this complication of pregnancy.

Keywords: tocolysis, premature birth, retinopathy of prematurity, isthmic-cervical insufficiency, neonatal mortality, prenatal rupture of amniotic fluid, extraction of the fetus in the whole amniotic sac.

INTRODUCTION

According to the WHO definition, preterm birth is defined as a birth that occurs between 22 and 36 weeks and 6 days (154–259 days) of gestation from the first day of the last normal menstrual period with a regular menstrual cycle, while the body weight of the fetus is from 500 to 2500 [3].

With PL, it is registered 8–13 times more often than with timely ones [4, 5]. Over the past 30 years, significant progress has been made in nursing premature newborns (use of surfactant preparations, prevention of respiratory distress syndrome with glucocorticoids, optimization of mechanical ventilation techniques), however, PL in civilized countries still cause 70% of all perinatal mortality [1].

MATERIALS AND METHODS

Retinopathy is a severe vasoproliferative disease, the pathogenesis of which is based on the immaturity of the retinal structure and the incompleteness of its vascularization at the time of preterm labor.

Depending on the gestational age (GA) at birth, the incidence of ROP is: among children born before the 28th week of pregnancy - 77.4%, before the 30th week - 48.5%, before the 32nd weeks - 31.2%. Depending on birth weight, the frequency of ROP: up to 1000 g - 55.8%, up to 1250 g - 52.7%, up to 1500 g - 40.3%, up to 1750 g - 30.9%, up to 2000 g - 24 [19].

A dependence of the high frequency of ROP in infants born by caesarean section has been noted [2].

Severe birth asphyxia can be considered the most significant intranatal risk factor for ROP in very preterm infants. A decrease in the first Apgar score to 4 points or less in children with very low and extremely low body weight not only increases the incidence of severe forms of perinatal lesions of the central nervous system, but is also associated with ROP [3].

The widespread introduction of assisted reproductive technologies in the Russian Federation contributes to a steady increase in the number of children with extremely low body weight born from multiple pregnancies. Premature twins are a high-risk group for the development of ROP.

In multiple pregnancy, one of the essential aspects that determine its course and outcome is the type of placentation. The most unfavorable is the monochorionic type, which most often does not provide proper fetoplacental circulation and physical development of the fetus. Therefore, in monochorionic twins, the incidence of ROP is higher than in bichorionic twins. Birth order does not significantly affect the incidence of ROP, but second-born babies are more likely to have "threshold" stages of the disease.

RESULTS AND DISCUSSION

Hexoprenaline sulfate is a drug of the β -adrenergic agonist group. With its use, relaxation of

the myometrium occurs by binding to β_2 -adrenergic receptors and an increase in the levels of intracellular cyclic adenosine monophosphate, which reduces the contractile activity of the myometrium. However, the presence of side effects limits its use. Much more often in the world, drugs not licensed in Russia are used: calcium channel blockers (nifedipine), cyclooxygenase inhibitors — non-steroidal anti-inflammatory drugs (NSAIDs). The advantages of nifedipine are less pronounced side effects on the part of the pregnant woman, an increase in the period of prolongation of pregnancy, a decrease in neonatal complications: necrotizing enterocolitis, neonatal jaundice. In Russia, nifedipine is not registered as a tocolytic agent, and therefore, the written informed consent of the patient for its use is required before starting treatment [3].

The problem of delivery is especially serious: the number of caesarean sections in the interests of the fetus with PR is growing. As shown by a Russian multicenter study, there were 3.5 times more newborns who needed mechanical ventilation, born through the natural birth canal, than those born abdominally [2, 20]. In our own study of the relationship between perinatal mortality and the method of delivery, it was found that more than 2/3 of the dead preterm infants were born through the natural birth canal. All differences in outcomes, as always with PR, are determined by gestational age. We share the position of the Ural Research Institute for the Protection of Motherhood and Infancy, confirmed in the country and in Europe: in the period of 22–26 weeks, abdominal delivery does not improve the outcome, and after 27–28 weeks, it actually increases both the survival rate and the health status of newborns and infants [1].

In most perinatal centers in the world, less than 40% of PL begin and end spontaneously, in other cases, abdominal delivery occurs [1]. Differences after 26 weeks are significant: the incidence of neonatal morbidity in surgical termination of pregnancy is significantly better than in spontaneous preterm birth; Stillbirth with spontaneous PL is 40%, with caesarean section - 1.9%. Early neonatal mortality is 30 and 7.9%, respectively [4]. Perinatal mortality in PL can be reduced by delivery by caesarean section, but it is very problematic to influence the incidence of children, especially those with low and extremely low body weight [1, 21].

We consider the use of the technology of fetal retrieval in the whole amniotic sac to be a feature of caesarean section in PL. Used for many years by us and our followers, widely covered in scientific research, including dissertations, in the country and abroad, this operation makes it possible to reduce the traumatization of the child in contact with the surgeon's hands [1, 2, 4] (Fig.).



Fig. Foetal extraction of premature twins in whole foetal bladder

After such "hydroprotection", premature babies, like all small ones, need less resuscitation measures and their duration, the incidence of cerebral palsy is minimized, discharge from hospitals of the 1st and 2nd stages is accelerated. With vaginal PL, pain relief is key. Since the physiological denervation of the uterus and the restructuring of the sympathetic-adrenal system occurs by the full term of pregnancy, each contraction in PL is "stress for the mother and shock for the fetus." Epidural anesthesia, which provides a regional sympathetic block, is recognized as the method of choice for anesthesia of PL [2].

Prenatal rupture of amniotic fluid (AIF) precedes 30% of PR. Three main causes of neonatal death are associated with DIV in preterm pregnancy: prematurity, sepsis, and pulmonary hypoplasia. The risk to the mother is associated primarily with chorioamnionitis. Within the first day after the outflow of water, spontaneous labor in 26% begins with a fetal weight of 500–1000 g, in 51% - with a fetal weight of 1000–2500 g, in 81% - with a fetal weight of more than 2500 g [2, 3].

Prolongation of pregnancy at a term of up to 22 weeks is not advisable due to an unfavorable prognosis for the fetus and a high incidence of purulent-septic complications in the mother [3].

At a gestational age of up to 34 weeks, in the absence of contraindications, expectant management is advisable: tocolysis and prevention of fetal distress syndrome. If delivery by cesarean section is necessary, it is advisable to carry it out no earlier than the third day of hospital stay (to wait for the effect of ACT, if the situation allows, to prolong the pregnancy to the maximum possible) [1].

CONCLUSION

Women with previous spontaneous preterm labor, singleton pregnancy and a cervical length of less than 25 mm for up to 24 weeks of pregnancy should



be offered the imposition of a circular or U-shaped suture on the cervix to prevent preterm labor [1, 3] .

With regard to the application of obstetric pessaries as an alternative to sutures, according to available data, they can be effective for the prevention of PL in high-risk patients, especially in nulliparous and pregnant women with a short cervix bearing twins [3]

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