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v rámci publikační skupiny Publishing Group „ Vědecká perspektiva “

MODERNÍ ASPEKTY VĚDY

Svazek XLII mezinárodní kolektivní monografie

Česká republika
2024

International Economic Institute s.r.o. (Czech Republic)
Central European Education Institute (Bratislava, Slovakia)
National Institute for Economic Research (Batumi, Georgia)
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Public Organization Organization "Association of Scientists of Ukraine" (Kyiv, Ukraine)
University of New Technologies (Kyiv, Ukraine)

within the Publishing Group "Scientific Perspectives"

MODERN ASPECTS OF SCIENCE

42- th volume of the international collective monograph

Czech Republic
2024



ODDÍL 3. TECHNICKÉ VĚDY.....167

§3.1 *ВИКОРИСТАННЯ ЗАХИСНИХ ПОКРИТТІВ ПРИ ВИГОТОВЛЕННІ ВИРОБІВ ЕЛЕКТРОННОЇ ТЕХНІКИ (Часник Д.В., Український науково-дослідний інститут спеціальної техніки та судових експертиз Служби безпеки України, Франков О.С., Український науково-дослідний інститут спеціальної техніки та судових експертиз Служби безпеки України).....167*

ODDÍL 4. LÉKAŘSKÉ VĚDY.....179

§4.1 *OBSTETRICAL AND PERINATAL CONSEQUENCES OF CHILDBIRTH IN WOMEN AT 41-42 WEEKS OF GESTATION (Siusiuka V., Zaporizhzhia State Medical and Pharmaceutical University, Bohuslavskа N., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council, Kyryliuk O., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council, Shevchenko A., Zaporizhzhia State Medical and Pharmaceutical University, Babinchuk O., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council).....179*

§4.2 *ЗАСТОСУВАННЯ ЛІКАРСЬКИХ РОСЛИН І ФІТОПРЕПАРАТІВ ПРИ ТЕРАПІЇ ДИСФУНКЦІЙ ЩИТОПОДІБНОЇ ЗАЛОЗИ (Кухнюк О.В., Черкаська медична академія, Глущенко А.В., Черкаська медична академія, Канак Л.А., Черкаська медична академія, Ромащенко В.В., Черкаська медична академія).....187*

§4.3 *ІНСОМНІЯ, ПОСТТРАВМАТИЧНИЙ СТРЕСОВИЙ РОЗЛАД І МЕТАБОЛІЧНИЙ СИНДРОМ (Сергієнко О.О., Львівський національний медичний університет імені Данила Галицького, Сегін В.Б., Львівський національний медичний університет імені Данила Галицького, Гоцко М.Є., Львівський національний медичний університет імені Данила Галицького, Сергієнко В.О., Львівський національний медичний університет імені Данила Галицького).....203*



ODDÍL 4. LÉKAŘSKÉ VĚDY

§4.1 OBSTETRICAL AND PERINATAL CONSEQUENCES OF CHILDBIRTH IN WOMEN AT 41-42 WEEKS OF GESTATION (Siusiuka V., Zaporizhzhia State Medical and Pharmaceutical University, Bohuslavska N., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council, Kyryliuk O., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council, Shevchenko A., Zaporizhzhia State Medical and Pharmaceutical University, Babinchuk O., Municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council)

Postterm pregnancy is one of the urgent problems in obstetrics, which is due to the increase in the frequency of perinatal morbidity and mortality in this category of patients. Many questions remain regarding the correct determination of the term of pregnancy, detection of early and reliable signs of pregnancy, prediction of complications of pregnancy and delivery period, choice of delivery tactics and possible date of the start of birth stimulation.

A pregnancy is considered full-term at 37-42 weeks [1]. Accordingly, the spontaneous onset and progression of labor in the appropriate period of pregnancy in the occipital presentation of the fetus is considered as a physiological (normal) birth, provided that its course occurred without complications during the entire period of childbirth, with a satisfactory condition of the mother and the newborn after delivery [2]. Postterm pregnancy refers to a pregnancy period of more than 42 weeks, calculated from the first day of the last menstrual period, and its prevalence varies significantly and ranges from 0.4% to 11% [3, 4].

Being born after 42 weeks' gestation may slightly increase the risks for babies, including a higher risk of perinatal mortality. The problem of delayed



pregnancy and late childbirth is explained by a large percentage of complications during pregnancy, childbirth and in the postpartum period [1, 3, 4, 5]. In addition, research suggests that gestational age beyond 42 weeks is associated with risk factors for long-term adverse health outcomes for the offspring [3, 4, 6, 7, 8].

The purpose of the study: to evaluate the obstetric and perinatal consequences of childbirth in women at 41-42 weeks of gestation.

Subjects examined and research methods An analysis of the course of pregnancy and perinatal consequences of childbirth has been carried out in 96 patients who gave birth at 41-42 weeks of gestation. The study has been conducted on the basis of the municipal non-profit enterprise "Regional Perinatal Center" of the Zaporizhzhia Regional Council. Management of pregnancy and childbirth of the women of the study group was carried out in accordance with the current Orders of the Ministry of Health of Ukraine. The characteristics of obstetric and gynecological anamnesis, the course of pregnancy, the data of cardiomonitoring and ultrasound examination, dopplerometry, as well as the characteristics of the course of childbirth, the nature of amniotic fluid, the condition of children at birth and in the early neonatal period were analyzed in all pregnant women. General condition of newborns was assessed on the basis of a daily examination, which included the study of the neurological status. The examination was carried out according to generally accepted methods.

The functional assessment of the state of the fetus was carried out using a cardiotocographic (CTG) study on the «Oxford Team 8000» and Hewlett Packard cardiomonitor according to the generally accepted method, as well as ultrasound examination (USE) on the "Biomedica Au-530" device using a linear sensor with a frequency of 3.5 MHz .

Each pregnant woman was interviewed about the expediency of additional research methods and consent to their implementation was obtained. The research



meets the modern requirements of moral and ethical norms regarding the rules of ICH / GCP, the Declaration of Helsinki (1964), the Conference of the Council of Europe on Human Rights and Biomedicine, as well as the provisions of legislative acts of Ukraine.

Variational and statistical processing of the results was carried out using licensed standard packages of multivariate statistical analysis application programs "STATISTICA 13».

Resultas and their discussion. Analysis of anamnestic data showed that the average age of the examined patients was 27.3 ± 0.4 years. In the structure of pregnancy complications of women who gave birth at 41-42 weeks of gestation, fetal growth retardation (FGR) - 4 (4.%), uterine-placental-fetal blood circulation disorders - 38 (39.6%), pre-eclampsia of various severity degrees – 21 (21.9%), incompetent cervix – 3 (3.1%), anemia of pregnancy – 26 (27.1%), fetal distress – 13 (13.5%), as well as congenital malformations of the fetus – 3 (3.1%) has been diagnosed.

According to the results of the USE, oligohydramnios has been determined quite often - 7.3% (7 women) of cases. Polyhydramnios has been diagnosed in 12 women, which was 12.5%. The following ultrasound signs of postterm pregnancy were also detected: a decrease in the thickness of the placenta, the absence of an increase in the biometric indicators of the fetus during dynamic examination, clearer contours of the head, large sizes of the fetus, and decrease in motor activity. Pregnancy is often combined with macrosomia. The number of children with a body weight of 4000 grams or more increased with increasing gestational age in women. Thus, the presence of macrosomia was established in almost $\frac{1}{4}$ of all cases (22 newborns), and the presence of a giant fetus was also noted in 4 women, which amounted to 4.2%. In such large fetuses, during childbirth, in postterm pregnancy, the head is strongly compressed by the bones of the mother's pelvis, and the ability



of the head to configure when moving through the birth canal in such children decreases with increasing gestational age. This leads to an ischemic-hypoxic impression of the central nervous system of various severity degrees. It has been proven that a premature fetuses tolerate hypoxia much worse than full-term children. This is due to the higher sensitivity of the nervous system of the transferred fetus to hypoxia. It is hypoxia during pregnancy that is the pathogenetic factor of perinatal damage to the CNS of a fetus.

CTG and dopplerometry of the vessels of the feto-placental complex are a fairly accurate way of determining fetal distress during pregnancy, which respond quite clearly to all blood flow disturbances in the mother-placenta-fetus system. One of the factors in the development of fetal distress is placental insufficiency, which often accompanies late pregnancy. In particular, one of the indicators of dopplerometry - a compensatory decrease in resistance in the middle cerebral artery and an increase in vascular resistance in the aorta is an indicator of the centralization of fetal hemodynamics. Decompensation of fetal blood circulation significantly increases the percentage of negative perinatal consequences during pregnancy.

It should be noted that signs of low water and fetal distress during pregnancy were determined according to ultrasound, dopplerometry and CTG data, and meconium was detected in the amniotic fluid during childbirth in part of the women with postterm pregnancy. For those pregnant women cesarean section was chosen as the delivery tactics, and, as a result, these children had no neurological symptoms and aspiration of amniotic fluid, which indicates the correctly chosen management tactics of women with postterm pregnancy. The combination of macrosomia and fetal distress during pregnancy or delivery significantly worsens perinatal outcomes.

As the gestation period increases, the amount of amniotic fluid decreases - free of fetus' echo structures the the largest vertical size of the pocket. Low



amniotic fluid in late pregnancy increases the frequency of perinatal complications, and the severity of functional disorders of the fetus depends on the severity of low amniotic fluid. Thus, oligohydramnios should be used as a risk factor for perinatal damage to the CNS and as an indication for choosing of labor stimulation tactics. Also, the frequency of detection of meconium in the amniotic fluid increased with increasing gestational age, and this sign also worsened the prognosis and perinatal consequences. Meconium staining of the amniotic fluid indicated the development of fetal distress. As a result of this process, meconium aspiration syndrome can occur, which causes perinatal damage to the central nervous system of the fetus.

Birth through the natural birth canal occurred in 89.6% of cases (86 women), the frequency of cesarean section was 4.2% (4 women), surgical vaginal delivery (vacuum extraction of the fetus) occurred in 10 (10.4%) cases. Various complications of childbirth were noted, namely untimely discharge of amniotic fluid, the frequency of which was 6.3% (6 women) and secondary weakness of labor in 2.1% (2 women). Various complications of childbirth also worsen perinatal outcomes in postterm pregnancy. Premature discharge of amniotic fluid occurs quite often - 6 women (6.3%), and subsequently labor activity in some women did not develop, which became an indication for labor stimulation with the help of oxytocin. It is also possible to have an abnormality of the contractile activity of the uterus (primary or secondary weakness of labor - 6 women (6.3%) and 2 women (2.1%)), a decrease in the intensity of uteroplacental blood circulation, and as a result - distress and asphyxia of the fetus (13.5%). The fetal condition and perinatal outcomes are also affected by the duration of labor stimulation with oxytocin. If the duration of labor stimulation exceeded 3 hours, the density of the amniotic fluid increased, and sometimes the late appearance of meconium was observed. Encephalopathy and aspiration syndrome were also diagnosed in this category of newborns. It should be noted that it was not the fact



of using uterine contraction stimulants that mattered, but the dose of the uterotonic and the time of administration.

The tactics of childbirth is an important issue in the event of a postterm pregnancy. Quite often, doctors are inclined to perform a cesarean section in postterm pregnancy, especially in the case of development of labor weakness and the lack of effect from uterotonics. Thus, 6 (6.3%) women were delivered by planned caesarean section and 4 women were operated urgently. Indications for urgent operative delivery were a combination of overcarrying a pregnancy with signs of fetal distress, immatured puerperal ways, with the absence of an effect from the preparation of the cervix for childbirth, with the presence of macrosomia. The most frequent indication for cesarean section was fetal distress during pregnancy with a gestation period of more than 41 weeks.

The need for cesarean section is determined not so much by the gestation period, but rather by the signs of fetal distress, the presence of hypertensive disorders, pelvic presentation, and the immaturity of the cervix. The majority of newborn babies as a result of cesarean section were in a satisfactory condition without neurological symptoms, even in the presence of signs of carrying and fetal distress. That is, expanding the indications for caesarean section in late pregnancy will improve perinatal outcomes, especially in case of fetal distress and uterine contractile abnormalities.

One of the important issues of childbirth in late pregnancy is fetal distress, which may develop during pregnancy or during childbirth. According to literature data, fetal hypoxia and asphyxia are the most frequent causes of perinatal mortality. Also, hypoxic damage to the central nervous system can lead to both minimal brain dysfunctions and severe motor and intellectual disorders. Such children often develop encephalopathy, syndrome of increased neuro-reflex excitation, syndrome of intracranial hypertension, seizure syndrome, delayed



psychomotor development, delayed physical development, neurotic reactions, muscular dystonia, delayed language development. Thus, fetal distress in postterm pregnancy is an important criterion for the development of neurological disorders in a newborn and can serve as a factor in correcting delivery tactics.

Prolongation of pregnancy beyond 42 weeks is inadmissible due to the increased time of damage to the child's brain due to chronic hypoxia of a fetus. Antenatal factors are the leading factors that create the most negative impact on the child's central nervous system during postterm pregnancy. If there were no complications and meconium aspiration during childbirth, the severity of the damage to the central nervous system was determined by intrauterine hypoxia of the fetus.

Therefore, our research solves the issue of predicting perinatal consequences in postterm pregnancy. It is important to conduct childbirth taking into account CTG data regarding the diagnosis of fetal distress, taking into account prognostic criteria for the development of hypoxic-ischemic damage to the central nervous system and asphyxia. Expanding indicators for caesarean section will reduce the frequency of perinatal complications - meconium aspiration syndrome, asphyxia, damage to the central nervous system.

Conclusions. The results of the research show that in women who gave birth at 41-42 weeks of pregnancy, an increase in the frequency of obstetric and perinatal complications was established, namely: premature rupture of fetal membranes, weakness of labor, birth trauma, postpartum hemorrhage, fetal distress. These complications had a direct impact on the increase in the frequency of operative deliveries (vacuum extraction and caesarean sections) and, accordingly, increased the number of bed days. Newborns with late pregnancy have clinical features of early adaptation, characterized by a low Apgar score, higher morbidity, frequent damage to the nervous system, the development of



autonomic dysfunction syndrome, high infectious morbidity and maladaptation syndrome in the early neonatal period.

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