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Antenatal care during Multiple Pregnancies.

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ABSTRACT

The analysis of the pregnancy course, labor and perinatal outcomes was carried out at 182 women with duo chorionic and 86 patients with monochorionic twins and 40 women with a singleton pregnancy. Multiple pregnancy was proved to be a monochorionic (MH) and duo chorionic (DX) that is a high risk factor for perinatal complications. The termination threat of pregnancy is marked by 59.3% of women with monochorionic and 62% of women with duo chorionic twins. Preeclampsia complicated pregnancy at 30.2% and 23.6% of patients, respectively, with monochorionic and duo chorionic placentation type. A frequent complication of a monochorionic and duo chorionic pregnancy anemia was detected in more than half of observations. The frequency dependence of identified lesions at pregnancy with twins was established by chorionic. Careful observation of the patients with multiple pregnancies in the antenatal period, the prevention of the most frequent complications, ultrasound monitoring with early pregnancy allows a differentiated approach to the management of pregnancy and childbirth, helping to reduce perinatal morbidity and mortality.

Keywords: multiple pregnancies, miscarriage, threat of premature birth, transvaginal ultrasonography.

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INTRODUCTION

Over the past two decades, the world has seen an increase in the frequency of multiple pregnancies (MP), which is still considered to be a specific biological constant [1, 2]. Statistical research in developed countries has shown that the multiple pregnancy rates continue to increase. Now the twins births occur at 1.4-2.4% and iatrogenic multiple pregnancy is 30-80% of multiple pregnancies. In 60-70% of cases this is due to the frequent use of ovulation induction, superovulation in assisted reproductive technologies (ART), including vitro fertilization (IVF) and embryo transferring (ET) [4, 9]. When discussing the safety of these technologies special attention is paid to the problem of the health quality of children born after IVF. With the developing the reproductive technologies that increase the number of BS, increase the number of factors that may adversely affect the course of pregnancy, maternal morbidity (increase in 3-7 times) and material costs associated with it. The last are increasing by more than 40% if compared with a singleton pregnancy [1, 4]. During fetal development a set of factors influence the embryo and fetus that are dangerous for normal development. Firstly, barren women come very late in the reproduction process (more than half of the surveyed women were aged over 30 years), in connection with which dramatically increases the risk of children's birth with congenital malformations. Secondly, a significant number of subjects (60.5%) had severe somatic pathology which required drug therapy. In addition, all women received hormone therapy to stimulate superovulation and (or) the continuation of the pregnancy, also had some adverse effects on fetal development [7, 9].

Analysis of recent research and publications: multiple pregnancies have a high rate of anti-perinatal maternal complications, fetal and neonatal deaths of children, perinatal morbidity. This perinatal loss and the incidence of multiple pregnancies increase in proportion to the number of fetuses developing [5, 6]. Pathogenesis of perinatal pathology in multiple gestations cannot be fully explored. And so far there are no clear data about the features of the formation and the functional state of feto-placental complex, depending on the cause and nature of the twins, are insufficiently developed methods for assessing the embryo's state, the monitoring of fetal development, prenatal care and prognosis of perinatal outcomes at pregnant women with a multiple pregnancy.

Multiple pregnancies are accompanied by a large number of complications in pregnancy and childbirth: preeclampsia, miscarriage, premature labor, anemia, gestational diabetes, fetal growth retardation, feta-fetal transfusion syndrome, abnormal position of the fetus and placenta location, poly hydramnios and oligo hydramnios, bleeding that leads to maternal morbidity and mortality. It was found that the development of preeclampsia in induced multiple pregnancies occurs twice as often as in the population depends on the type of placentation. At trichorionic triamniotichny triplet's preeclampsia was observed in 80%, with duo amniotic monochorionic twins - at 66.6%, with duo amniotic duo chorionic twins – in 28.1% of cases. Patients with BV are at high risk of perinatal complications [8, 10, and 11]. Perinatal morbidity and mortality in twins depends on chorionic. According to studies, the level of perinatal mortality, due mainly deep higher in monochorionic twins than in duo chorionic (5% and 2%, respectively) aborted fetus at birth, incidence of preterm birth before 32 weeks of pregnancy with monochorionic is 10% compared to 5% at duo chorionic twins. The frequency of spontaneous abortion in the period from 11 to 24 week with duo chorionic twins is 2%, with monochorionic – about 10% [7, 9].

Questions of early diagnosis of multiple pregnancies, eliminating the obstetric of complications, the increase in the duration of pregnancy, in order to avoid complications in childbirth and optimal care for newborns, are the main tasks in the management of multiple pregnancies and the key to solving the problem of reducing perinatal losses during multiple pregnancies. A separate problem comprises the conducting of multiple births, where the question of choosing the tactics and timing the delivery is closely linked to the organizing the obstetric care, material and staffing the medical institutions that can take on the responsibility for the delivery of pregnant women with multiple pregnancies [1, 3].

The aim of our study: and summarize the course of pregnancy and delivery in multiple pregnancies in modern conditions.

Presentation of basic material: research was conducted at the Sumy Regional Clinical Perinatal Center during 2012 - 2015 years. In the process of scientific research we examined 182 pregnant women with duo chorionic twins, composition, group, and 86 patients with monochorionic (85 duo amniotic and one mono amniotic),

they were included in group II, and controlled group consisted of 40 women with a singleton pregnancy. A specially designed card was filled in for each of the examinees. The bulk of the studied pregnant women with multiple pregnancies were women aged 26 to 30 years (52.8%). At the age of 30 and over there were about 65 patients of group I (35.7%) and 30 women of group II (34.8%). Percentage of first pregnant and multiparous in both groups was identical and comprised respectively: group I - 63% nulliparous, multiparous - 37%; group II 68% - and 32% of nulliparous - multiparous. At 65 (35.7%) patients with a duo chorionic twin's pregnancy was induced, among them at 52 (28.6%) women pregnancy came after IVF. In addition to clinical examination and conventional laboratory tests, monitoring of early pregnancy with ultrasound was carried out. Ultrasonography (US) in a period of 10-13 weeks was carried out certain viability, number of fruits, chorionic, nuchal translucency, congenital malformations, and the exact gestational age. In the later period of pregnancy (18-22 weeks) was carried ultrasound photometry, placenta studying included measurements of it thickness and the assessment of the degree of maturity on Prof. Grannum and other authors (1979). In addition, during ultrasound was determined the amount of amniotic fluid, the thickness of the membrane between embryo, the placement of attached umbilical cord, as well as the sex of the fetus. All women within the period of 26 to 34 weeks of pregnancy and abortion with presenting the symptoms were carried out ultrasonic cervimeter. To determine the status of embryo and placental and fetal hemodynamics was used doppler blood flow in the umbilical artery and embryo's middle cerebral artery [6, 9]. Ultrasound examinations were performed with a modern ultrasound scanner «SONOACE X8» (Medison, Korea) using transvaginal transducer 6.5 MHz, convex sensors 3,5 and 5 MHz in a two echo regime using color Doppler analyzer. Newborn condition at birth was estimated at Apgar and Silverman, evaluated the severity of malnutrition newborns. In the neonatal period was carried neuron sonographer (NSG), track psychomotor development within the first six months of life in terms of infants [5].

Ultrasound examination in I trimester of pregnancy sets the type of placentation at pregnant women with multiple pregnancy. The differential diagnosis of mono- and duo chorionic twins in early pregnancy is based on determining the amount of fetal eggs, embryos in the egg, as well as on the identification of T or Y-signs during careful studying the partition between fetuses. In one case the lack of the partition between fetuses was the basis for the diagnosis of monochorionic twin's mono amniotic; this pregnant woman was included in the group II of examined patients. Thickness of the partition between fetuses, which is one of the diagnostic criteria of chorionic vibrates from 0.8 to 1.1 mm with monochorionic twins and from 1.4 to 2.8 mm with a duo chorionic placentation type. In the later stages of pregnancy, additional criteria such as gender placentation served fruit, number of placentas, as well as differences in their maturation.

During ultrasound examination of the pregnant patients of Group II meningeal attachment cord was diagnosed in 16 fetuses with monochorionic twins, including 12 cases and in other two - in both fetuses. All 16 fetuses is combined with fetal growth retardation (FGR): I degree - in one, II of degree - at 7 and III - 8 fetuses apparently due to the formation of abnormal placental circulation at a pathology of the umbilical cord attachment. In duo chorionic pregnancy rate of complications was 8.6%. Polyhydramnios was found in 26.2% of fetuses in group II, including during trimester II - 18 (40%) and III - 27 (60%). Note that expressed polyhydramnios (amniotic vertical column of 120 to 155 mm) was found in six pregnant. The same percentage of observations was diagnosed hypamnion - 41 (23.8%) of fetus, which often turned out in the III trimester (75.6 against 24.4% in the II trimester).
Complex pathologic ultrasonic parameters (dissociation expressed in fetal weight - from 15 to 55%, polyhydramnios / hypamnion) allowed the diagnosis prenatally syndrome feto-fetal transfusion (SFFT) at 20 patients of group II within 18-30 weeks. An important predictor of the development of SFFT, in our opinion, is the difference in the thickness of the placenta in its various departments, which are already diagnosed with ultrasound at 15-20 week of pregnancy, and was a sign of edema of the placenta, which belonged to the recipient.

In the future, with the growth of polyhydramnios at the recipient and hypamnion in the fetus, the donor has been some reduction in the thickness of this part of the placenta due to its mechanical compression of the large volume of amniotic fluid. Severe SFFT was found at eight patients of group II in the II trimester - 9.3% of pregnant women, which led to late miscarriage in five cases (including one patient with mono amniotic twins), antenatal death of both fetuses in pregnant one and one twin in two patients within the period of 28-30 weeks. Pathognomonic echo feature of heavy SFFT was the presence of a large bladder of the recipient's fetus on background of expressed polyhydramnios and no visualization of the bladder at the donor's fetus,

which was characterized by decreased motor activity in the background of marked hypamnion. Severe SFFT was characterized by abnormal blood flow in the umbilical artery in both fetuses when systolic-diastolic ratio (SDR) was bigger at 3.3, and was more expressed at the recipient's fetus that has the reversed blood flow. In the donor's fetus it is caused by placental pathology development, the recipient's fetus blood disorders associated with compression of the umbilical cord due to polyhydramnios.

In the analysis of pregnancy abortion threat was detected at 51 (59.3%) women with monochorionic and 34 (62%) women with duo chorionic twins. Preeclampsia during pregnancy complicated at 26 (30.2%) and 43 (23.6%) patients, respectively, with monochorionic and duo chorionic placentation type. A frequent complication of both the MH and DH twins was anemia, which is found in more than half of the surveyed (56.9 and 51%, respectively).

Diagnosis dissociated fetal growth in multiple pregnancies is based on the difference bio parietal diameter (BPD) (over 6 mm), abdominal circumference (AC) (20 mm), the length of the thigh (LT) (5 mm) difference presumed fetal weight (more than 20 %). During our observations with almost the same frequency of anemia, preeclampsia, and threatened abortion it draws attention the high percentage of dissociated fetal growth during pregnancy MH (22 vs. 14%), possibly due to the hemodynamic imbalance. This is consistent with the data M. Houlton et al. accordingly; there is a high percentage of ISG at MH double (34%) [8]. As the progression of pregnancy the number of fetuses with growth retardation as in MH and type in DH placentation increased from 32% within 32-35 weeks of gestation to 65.9% within 36-39 weeks. This FGR of one of the twins was more frequently observed in male fetuses than in females (73.6 vs. 26.4%); we didn't find the differences in the frequency of FGR 1st and 2nd fetus (60.8 and 62%).

Analysis of perinatal outcomes was conducted by taking into account the timing and method of delivery at 182 women with DH (antenatal death of one of the fruits of the two patients) and at 86 patients with MH with twins (five of SFFT severe miscarriage occurred later in 23-27 weeks of pregnancy).

Urgent deliveries occurred at 29 of 86 (33.7%) patients with pregnancy – MH, of which the majority (24) pregnant women at term 37,5–38,5 weeks of pregnancy. Preterm birth is the most common complication of multiple pregnancies, and occurred at 57 (66.3%) patients with pregnancy – MH. At DH twins the percentage of preterm births was slightly lower and amounted to 79 (43.4%).Vaginally resolved 60.5% of pregnant women with MH twins and 45% of pregnant women with type DH placentation. It should be noted that all women who gave birth vaginally, the first fetus was located only in the cephalic presentation.

The most frequent indications for operative delivery were first breech fetus, fetal distress during pregnancy and childbirth, FGR fetus / fetus, severe preeclampsia, premature detachment of normally situated placenta, anomalies of labor activity. Thus perinatal loss equally observed both after cesarean section and after spontaneous delivery and made 4% MH and 1.7% DH, respectively pregnancy.

Analysis of the newborn state, depending on the type of placentation shows that when monochorionic pregnancy status of children at birth was estimated five times more often below 7 scores at Apgar's scale. This is mainly due to the marked physiological immaturity, malnutrition, asphyxia varying degrees. It should be taken into account the fact that the second MX suffers more fetus.

Manifestations of the immaturity of the lungs were observed at babies born before 37 weeks of gestation. However, according to the same frequency of respiratory distress syndrome (RDS) for the MH and DH twins, the severity of their manifestations were more pronounced when monochorionic pregnancy. The number of infants who required mechanical ventilation), mechanical ventilation after birth, was at duo chorionic twins 15% against 24% at monochorionic.

The presence of cerebral pathology, according neuron sonography was not directly connected with the method of delivery, however, important when it acquired the gestational age when were non-traumatic hemorrhage in newborns, and related complications such as fetal distress, SFFG. Severe cerebral lesion is usually not met, after 33 weeks of gestation in both types of multiple pregnancies. At the same time, we should emphasize the expressed dependence of the frequency of identified lesions of chorionic (with 11 children with severe cerebral lesions were 7 with MH twins, and one - with monochorionic, mono amniotic).

We carried out a study on the development of children with remote DH and MH twins at the age of six months. There have been four cases of neonatal mortality in preterm infants with monochorionic twins born 28-34 weeks of gestation and died at the age of 2-3 months. At postmortem examination revealed a complete softening of the brain substance, hemorrhagic hydrocephalus, necrotizing enterocolitis. The presence of cerebral pathology of mild to moderate (perinatal hypoxic lesions of the central nervous system (CNS) disorders, movement disorders syndrome of increased neuron-reflex excitability syndrome, muscular dystrophy), regardless of the delivery method are found in a full-term and preterm infants six.

At DH pregnancy complication rate of the CNS in children under six months of life was almost identical and amounted to 27% against 23% - with the MH placentation. Emphasis is made on severe neurological complications in the form of hemi tetraparesis at the twins with DH, who were born at 32 and 37 weeks of gestation.

Thus, the multiple pregnancies - both MH and DH - are a high risk factor for perinatal complications. Careful observation of pregnant women with multiple pregnancy in the antenatal period, the prevention of the most frequent complications of multiple pregnancy (premature labor, anemia, preeclampsia, FGR), ultrasound monitoring with early pregnancy allow for a differentiated approach to the management of pregnancy and childbirth, helping to reduce perinatal morbidity and mortality.

CONCLUSIONS

1. Multiple pregnancies occur with a large number of complications compared with singletons. The threat of abortion was noted at 59.3% of women and 62% of monochorionic women duo chorionic twins, which is three times higher than in singleton pregnancies. Preeclampsia complicated pregnancy in 30.2% and 23.6% of patients, respectively, with monochorionic and duo chorionic placentation type, which is two times higher than in singleton pregnancies. A frequent complication of a monochorionic and duo chorionic pregnancy anemia was detected in more than half of observations. Noteworthy is a high percentage of fetus growth dissociated with MH pregnancies (22% vs. 14% with duo chorionic twins).

2. Delivery in the case of multiple pregnancies also occur much more complicated and is three times more than in singleton births terminated surgically. The most frequent indications for operative delivery were first breech fetus, fetal distress during pregnancy and childbirth, FGR, severe preeclampsia, premature detachment of normally situated placenta, anomalies of labor activity. These perinatal losses equally observed both after cesarean section and after spontaneous labor and amounted to 4% at monochorionic and 1.7% with duo chorionic twins.

Prospects for further research are to study the deepening problems antenatal care in multiple pregnancies, the introduction of a mandatory ultrasound in the first trimester of pregnancy with the definition of the type of placentation and the inclusion of a mandatory transvaginal cervimeter surveys algorithm in multiple pregnancies. Thus, the increase in the frequency of multiple pregnancy influences the obstetric and perinatal indicators, pushing this issue in a number of the most pressing issues of modern obstetrics and perinatology.

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