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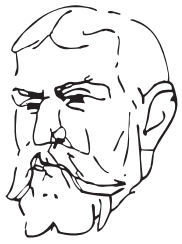

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ORIGINAL ARTICLE

PECULIARITY OF ADAPTATION OF BABIES ARE BORN PREMATURELY FROM MOTHERS WITH UNDIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA

DOI: 10.36740/WLek202110206

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ABSTRACT

The aim: To evaluate the peculiarity of clinical manifestations of neonatal respiratory distress syndrome (NRDS) in deeply premature infants from mothers with phenotypic markers of undifferentiated connective tissue dysplasia (UCTD).

Materials and methods: The study represent the results of a retrospective clinical and statistical analysis of 268 premature birth report card and newborn report sheet. .The main (1 group) included 50 pregnants with obvious phenotypic markers of UCTD, the comparison group (group 2) consisted of 50 pregnant women without phenotypic markers of UDCTD.

Results: According to the study, in 12 (24%) pregnant women of the main group at the time of admission to the clinic had contractions,which required specific therapy. Cervical cerclage was performed in 38 (76%) patients of the main group due to the presence of cervical insufficiency (CI). In these cases, the severity of the CI on the Steinber scale was 7.2 ± 0.4 points in the main group against 4.4 ± 0.2 points in the comparison group ($p < 0.05$). Group I patients were more likely to have complications of labor such as:premature rupture of membranes, uterine contraction abnormalities and fetal distress, which required in most cases cesarean delivery (7% and 2%), respectively ($p < 0.05$). The incidence of neonatal complications requiring respiratory support was 67% in group I and 48% in group II. According to our observations, the clinical manifestations of bronchopulmonary dysplasia were twice as high in infants of the main group (66%) against (44%) of the comparison group ($p < 0.05$).

Conclusions:1.Neonatal respiratory distress syndrome in premature infants is more often associated from mothers with UDCTD. 2. The high importance of steroid prophylaxis of NRDS and antioxidant therapy in reducing the frequency of mechanical ventilation and the development of bronchopulmonary pathology, especially in infants from mothers with UDCTD syndrome, has been proven. 3. The possibility of diagnosing disorders of functional maturation of the lungs in the fetal period using a non-invasive method of ultrasonography has been confirmed.

KEY WORDS: Fetal distress, neonatal respiratory distress syndrome, cervical insufficiency, undifferentiated connective tissue dysplasia

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INTRODUCTION

Premature labour is one of the urgent problems of modern obstetrics and neonatology, an important task of which is to optimize care for premature infants in order to avoid serious complications and chronic diseases [1-3]. Premature births range from 8% to 30% of their total number and 70-75% are the leading cause of perinatal morbidity and mortality [4-7]. Prematurity is a complex medical and social problem for both society and the family. The incidence among premature infants is 33 times higher than among full-term infants and is 70% of all perinatal mortality, where the main cause is neonatal respiratory distress syndrome (NRDS) [8].

It should be noted that pregnant women with undifferentiated connective tissue dysplasia (UDCTD) are a group at high risk of premature labour on the background of cervical insufficiency(CI) [9]. Therefore, the presence of UDCTD in the mother, the frequency of which according to various authors reaches from 20% to 30% of pregnancies [10] affect the development and formation of lungs in the fetus during organogenesis and postnatal development.

One of the manifestations may be neonatal respiratory distress syndrome and bronchopulmonary pathology that require respiratory support in the neonatal period. Therefore, more and more attention has recently been paid to the study of the effectiveness of various methods of respiratory support for NRDS in premature infants[11].

Contradictory data on the management of premature infants from mothers with UDCTD syndrome, justify the need for additional research aimed at optimizing medical care for these babies.

THE AIM

To evaluate the peculiarity of clinical manifestations of neonatal *respiratory distress syndrome* (N*RDS*) in deeply premature infants from mothers with phenotypic markers of **undifferentiated connective tissue disease** (UCTD).

MATERIALS AND METHODS

The study represent the results of a retrospective clinical and statistical analysis of 268 premature birth report card

Table I. Features of gestation and childbirth in patients of the main and comparison groups, (%)

Indicators	I group (n=50)	II group (n=50)
Cervical cerclage	39(78%)	19(38%)
Premature labour	17(34%)	6(12%)
Full-term labour	33(66%)	44(88%)
Complications in labour:		
- premature rupture of membranes	18(36%)	7(14%)
- uterine contraction abnormalities	11(22%)	5(10%)
- fetal distress	21(14%)	9(18%)
Cesarean section	7(14%)	2(4%)

and newborn report sheet. The main (1 group) included 50 pregnants with obvious phenotypic markers of UCTD, the comparison group (group 2) consisted of 50 pregnant women without phenotypic markers of UDCTD.

Two representative groups were formed: the main (group I) included 50 patients with phenotypic markers of undifferentiated connective tissue dysplasia (myopia, varicose veins, mitral valve prolapse, joint pathology), the comparison (group II) was 50 pregnant women without phenotypic markers of UDCTD.Statistical processing of research results was performed by using Excel.

RESULTS

According to the study, in 12 (24%) pregnant women of the main group at the time of admission to the clinic had contractions,which required specific therapy. Cervical cerclage was performed in 38 (76%) patients of the main group due to the presence of cervical insufficiency (CI). In these cases, the severity of the CI on the Steinber scale was 7.2 ± 0.4 points in the main group against 4.4 ± 0.2 points in the comparison group ($p < 0.05$).

According to the obtained data in the I group of observation there is a high risk of ante- and intranatal damage to the fetus.

As is seen from table I, the most frequent correction of cervical insufficiency with cervical cerclage was performed for patients with UDCTD . Group I patients were more likely to have complications of labor such as:premature rupture of membranes, uterine contraction abnormalities and fetal distress, which required in most cases cesarean delivery (7% and 2%), respectively ($p < 0.05$).

Newborns had a low score of 1 min. at birth on the Apgar scale, so for 5 minutes of life, 4 points in the main against 7 points in the comparison group.

The incidence of neonatal complications requiring respiratory support was 67% in group I and 48% in group II. Among them, respiratory distress syndrome had a more severe course, which required artificial lung ventilation (ALV), especially in babies from mothers with UDCTD, whose gestational age was <28 weeks.

At the same time, the concentration of oxygen more than 60% during mechanical ventilation required 8 (16%) newborns in the main group and 5 (10%) in the comparison group ($p < 0,05$).

It is known that mechanical ventilation increases the survival of particularly premature infants, however, quite often during mechanical ventilation there are ventilator-associated lung damage and bronchopulmonary dysplasia.

According to our observations, the clinical manifestations of bronchopulmonary dysplasia were twice as high in infants of the main group (66%) against (44%) of the comparison group ($p < 0.05$).

It should be noted that carrying out in the intranatal periods of steroid prophylaxis and antioxidant therapy significantly reduced the chances of mechanical ventilation in newborns.

DISCUSSION

Our research allowed us to identify contributing risk factors for lung tissue damage ante- and intranatally, as well as to assess the long-term consequences in children born from mothers with UDCTD.

Studies have shown that one of the leading factors of ante- and intra-pulmonary complications in the fetus can be both distress and meconium aspiration. In patients with premature rupture of membranes in whom the assessment of biophysical profile in the fetus indicated the presence of a fetal distress [5]. It is in these cases that abnormal pattern of breathing of the fetus of the "gasps" type (predominance of inspiration over exhalation) with a pronounced amplitude of diaphragm movements were noted. In these cases, the cardiotocogram (CTG) of the fetus was characterized by low variability, the presence of late decelerations of the heart rate. Dopplerography showed reverse or zero blood flow in the diastole phase. Amniotic fluid had a moderately viscous or thick consistency. In these cases, 7 (14%) had meconium aspiration in the fetus, which required rehabilitation of the tracheobronchial tree and respiratory support.

The above data show that preterm infants from mothers with UDCTD in the neonatal period are more likely to have respiratory disorders with the need for ventilation than in the comparison group, which affects the incidence of bronchopulmonary pathology 56% vs. 14%, respectively.

The studies revealed the risk factors for the formation of bronchopulmonary pathology, which requires further study of individual mechanisms of damage to immature components of lung tissue and their protection during respiratory support.

CONCLUSIONS

1.Neonatal respiratory distress syndrome in premature infants is more often associated from mothers with UDCTD.
2. The high importance of steroid prophylaxis of NRDS and antioxidant therapy in reducing the frequency of mechanical ventilation and the development of bronchopulmonary pathology, especially in infants from mothers with UDCTD syndrome, has been proven.
3. The possibility of diagnosing disorders of functional maturation of the lungs in the fetal period using a non-invasive method of ultrasonography has been confirmed.

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