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INTRAUTERINE PNEUMONIA IN FULL-TERM NEWBORNS

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Abstract: In the course of the study, a differential diagnostic concept was created based on the definition of clinical-paraclinical, tensiometric, rheological, biochemical, microbiological, histological and instrumental criteria of the main pathogenetic mechanisms of the development of intrauterine pneumonia and respiratory distress syndrome in premature infants in the early neonatal period.

Keywords: intrauterine pneumonia (IUP), premature infants, diagnostics.

INTRODUCTION

In Uzbekistan, in recent years, perinatal infections – intrauterine pneumonia (IUP) and sepsis have occupied 3-4th place in the structure of morbidity and mortality of newborns [1]. The frequency of IUP among premature newborns has tended to increase in recent years and varies within the range of 17.17% – 26.51% [2]. As a rule, this disease occurs in combination with respiratory distress syndrome (RDS), which is observed mainly in children born with low and extremely low body weight [3].

MATERIALS AND METHODS

The aim of the work is to develop and implement a differentiated approach to the diagnosis of IUP and RDS in premature infants in the early neonatal period based on the determination of clinical, paraclinical, tensiometric, rheological, biochemical, microbiological and instrumental criteria for the development of these diseases.

Observations of 300 premature infants with a gestation period of 22 to 36 weeks were analyzed. Group I included 90 children with IUP, Group II - 90 newborns with RDS and Group III - 90 premature infants with IUP + RDS. All premature infants had respiratory disorders from the first hours of life and needed respiratory support. According to indications, they received replacement therapy with exogenous surfactants. The control group consisted of 30 premature infants (GA = 35-36 weeks) with a relatively favorable course of the neonatal period, who were in joint stay with their mother and were breastfed.

RESULTS AND DISCUSSION

Significant risk factors (case-control study, where AF > 50%) for the occurrence of IUP in premature infants in the early neonatal period were combined pathology of the gestational period in the mother: bacterial vaginitis (28.7%), local CFU of the birth canal in the mother > 106 and above (83.9%), amnionitis (29.9%), chronic intrauterine hypoxia of the fetus as a result of chronic fetoplacental insufficiency (31%), anhydrous interval of more than 18 hours (62%), complicated (32.7%) and pathological (43.3%) labor, placental abruption (31.0%), green amniotic fluid (34.5%), inflammatory changes in the placenta (77.8%). In premature infants, significant risk factors for the development of IUP were:

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Apgar score less than 4-5 points at 5 minutes of life (22.2%), birth weight < 2500 g (82.2%), local CFU of body loci (trachea, pharynx, stomach) > 106 and above (78.2%), GA ≤ 29-33 weeks (62.2%), Downes score in the first hour of life 4 points or more (93.3%), primary resuscitation in the delivery room (100%).

In the course of the work, the clinical differential diagnostic criteria of IUP were established: in the first hours of life, an assessment on the Downes scale of 4-5 points (64.5%) and acrocyanosis when breathing air (62.2%), mucopurulent sputum (68.9%), in dynamics the appearance of gastrointestinal disorders (GID) (56.7%); an increase in the liver (48.9%) and / or spleen (18.9%), hyperthermia (17.8%). The outcome of GID in children with IUP in 15.6% of cases was necrotizing enterocolitis and in 10.0% interstitial pulmonary edema. Analysis of bacteriological results of the biocenosis of the birth canal of the examined women and their children revealed that contamination of the amniotic fluid with microorganisms in women in labor was 29.0%, and the placenta 24.7% of cases. 77.8% of mothers had pathological morphological inflammatory changes in the placenta. Opportunistic flora was detected in 28.7% of premature newborns (pharynx, stomach, trachea). The most common pathogens were: Candida albicans (25.9%), Escherichia coli (22.1%), Streptococcus faecalis (11.9%). In most cases, the CTE was 106 or more. The next stage of the work was the development of an algorithm for the differential diagnosis of respiratory disorders using the computer program "Diagnostics of respiratory disorders in newborns". The analysis of the relative area of the pathological region (RAPR) of the lungs revealed a clear asymmetry in the development of the pathological process of the lungs. Only in 3% of premature newborns the RAPR values on the left and right were the same.

In case of pathological changes in the left lung radiograph, the value of TPPO naturally increases in the series IUP > RDS > IUP+RDS, namely: increasing from ~6% with IUP, approximately 2-fold ($p < 0.001$) with RDS and approximately 4-fold ($p < 0.001$) with IUP+RDS (Table 1). The values of both TPPO on the right and TPPO on the left with IUP+RDS differ from those with IUP or with RDS ($p < 0.001$, $p1 < 0.001$). The average values of information entropy for the left lung (H on the left) and for the right (H on the right) lung in the control group of premature infants differ, with the value of H on the left being greater ($p < 0.001$) by 0.1 conventional units. However, with IUP and with IUP+RDS, the H value on the right is 0.2-0.25 conventional units lower, whereas with RDS alone, the H value on the right coincides with the value obtained in the control group. On the other hand, the H values on the left change in the opposite direction to those for OPPO on the left, and tend to decrease in the series IUP > RDS > IUP+RDS. However, with IUP+RDS, the H value on the left differs from the value obtained in the control group by approximately 0.1 conventional units, and from the values established with IUP or RDS ($p < 0.001$, $p1 < 0.001$).

CONCLUSION

In the course of the conducted research, a differential diagnostic concept was created based on the definition of clinical-paraclinical, tensiometric, rheological, biochemical, microbiological and instrumental criteria for the development of IUP and RDS in premature infants in the early neonatal period. All this made it possible to develop and implement a differentiated approach to these diseases in the practice of a neonatologist.

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