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DYNAMIC ASSESSMENT OF CLINICAL SIGNS AND LABORATORY PARAMETERS IN CONGENITAL PNEUMONIA AMONG NEWBORN INFANTS

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Abstract: Congenital pneumonia remains a leading cause of morbidity and mortality among newborn infants, necessitating early diagnosis and timely intervention. Accurate assessment of clinical signs combined with laboratory parameters is critical for guiding therapeutic decisions and predicting outcomes. This study aimed to dynamically evaluate the progression of clinical manifestations and laboratory indicators in neonates diagnosed with congenital pneumonia. Data were collected from newborns during the first week of life, with repeated measurements of vital signs,

respiratory parameters, and laboratory markers including inflammatory indices and blood gas analyses. The results highlighted specific trends in both clinical and biochemical parameters that correlated with disease severity and response to therapy. Dynamic monitoring provided valuable insights for early identification of high-risk patients and optimization of individualized treatment strategies.

Keywords: congenital pneumonia; newborn infants; clinical signs; laboratory parameters; dynamic assessment; neonatal care; disease severity; prognosis

Congenital pneumonia remains one of the leading causes of morbidity and mortality in the neonatal period, particularly in the early days of life. Early diagnosis is often complicated by nonspecific clinical manifestations and overlapping laboratory findings with other neonatal infectious conditions. The aim of this study was to conduct a dynamic assessment of clinical manifestations and laboratory parameters in newborn infants diagnosed with congenital pneumonia. The study included newborn infants with confirmed congenital pneumonia who were observed and treated in a specialized pediatric pulmonology center. Clinical data, including respiratory distress signs, temperature instability, cyanosis, and feeding intolerance, were assessed dynamically during the early neonatal period. Laboratory investigations comprised complete blood count parameters, inflammatory markers, and biochemical indices, which were analyzed at different stages of the disease course. Statistical analysis was performed to evaluate the relationship between clinical severity and laboratory changes. The results demonstrated that congenital pneumonia in newborns is characterized by progressive respiratory symptoms accompanied by significant alterations in laboratory parameters, including leukocyte count fluctuations, elevated inflammatory markers, and metabolic disturbances. Dynamic monitoring revealed that changes in laboratory indicators closely correlated with the clinical course and response to therapy. In conclusion, the combined dynamic evaluation of clinical manifestations and laboratory parameters plays a crucial role in the early diagnosis, monitoring, and management of congenital pneumonia in newborn infants. This approach may contribute to timely therapeutic interventions and improved clinical outcomes in neonatal practice. A retrospective observational study was conducted involving newborn infants with confirmed congenital pneumonia treated at a specialized pediatric medical center. Clinical signs, including respiratory distress, cyanosis, and temperature instability, were assessed alongside laboratory parameters such as complete blood count, C-reactive protein, and blood gas analysis. The dynamics of these indicators were evaluated during the course of treatment. The majority of newborns presented with respiratory distress syndrome within the first 72 hours of life. Laboratory findings commonly included leukocytosis

or leukopenia, elevated inflammatory markers, and metabolic acidosis. Dynamic monitoring demonstrated a gradual normalization of laboratory parameters parallel to clinical improvement under appropriate antimicrobial and supportive therapy.

Conclusion

Congenital pneumonia in newborn infants remains a significant clinical problem due to its early onset, severe course, and high risk of complications. The findings of this study demonstrate that congenital pneumonia is characterized by pronounced respiratory distress, systemic inflammatory response, and distinct laboratory abnormalities in the neonatal period. Dynamic evaluation revealed that changes in clinical manifestations closely correspond to fluctuations in laboratory parameters, reflecting the progression and severity of the disease. Timely assessment of clinical signs together with continuous monitoring of laboratory indicators plays a crucial role in early diagnosis and effective management of congenital pneumonia. The integration of dynamic clinical and laboratory assessment allows for improved identification of disease severity, optimization of therapeutic strategies, and prevention of adverse outcomes. Therefore, a comprehensive clinical-laboratory approach should be considered an essential component of neonatal care in infants with suspected congenital pneumonia.

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