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CLINICAL CHARACTERISTICS OF PREMATURE INFANTS WITH RESPIRATORY DISTRESS SYNDROME

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Abstract
Respiratory distress syndrome (RDS) is a serious pathological condition that occurs most often in premature infants, resulting from a lack of pulmonary surfactant. This article discusses the clinical characteristics of premature infants with RDS, the severity of the disease, diagnostic methods, and treatment tactics. It also analyzes the effectiveness of modern preventive measures and treatment methods.

Keywords: Respiratory distress syndrome, premature babies, surfactant, mechanical ventilation, perinatal pathology.

INTRODUCTION

Respiratory distress syndrome is a serious respiratory disorder that occurs most often in premature infants. It is characterized by difficulty breathing, hypoxemia (low oxygen delivery to the body), and progressive respiratory dysfunction. RDS is most common in infants born between 28 and 32 weeks of gestation [1].

It is important to understand the pathophysiology of premature infants with respiratory distress syndrome (RDS). Pathophysiology refers to the study of the mechanisms by which the disease occurs and how it is related to the processes in the body. The pathophysiology of RDS is associated with multiple abnormalities in the respiratory system, primarily due to surfactant deficiency and dysfunction. I will provide a full description of the pathophysiology below [2].

Respiratory distress syndrome (RDS) is one of the most common and severe complications of premature infants. According to the World Health Organization (WHO), approximately 15 million babies are born prematurely each year worldwide, and 50-60% of them develop RDS. This syndrome is mainly associated with incomplete lung development and surfactant deficiency, and in severe cases, it becomes one of the causes of perinatal death [3].

Surfactant is a fatty substance produced by epithelial cells lining the airways. It keeps the airways stable and controls the movement of gases in and out. Surfactant prevents the tiny air sacs (alveoli) in the airways from closing together and prevents them from leaking or collapsing (separating) [4].

The risk of developing RDS is closely related to the gestational age and weight of the fetus. In infants born at a gestational age of up to 28 weeks, this syndrome occurs in 60-80% of cases, and

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in infants born at a gestational age of up to 32-34 weeks, this figure is 15-30%. In modern neonatology, there are various methods for preventing and treating RDS, the effectiveness of which is still a subject of scientific debate [5,9].

This article describes the clinical features, diagnostic and treatment methods, and modern preventive measures of premature infants with RDS.

The clinical characteristics of premature infants with respiratory distress syndrome (RDS) are a very important and demanding scientific research topic. Respiratory distress syndrome is highly prevalent in premature infants [6].

Clinical signs. Babies with RDS have specific clinical signs: – Respiratory distress: rapid and labored breathing, gasping for air, labored breathing; – In severe cases, babies develop hypoxemia (insufficient oxygen supply to the blood) and hypocapnia (decreased carbon dioxide concentration in the blood). – Cyanosis: bluish skin or lips, associated with reduced oxygen supply to the blood. – Hypotonia: This condition, decreased muscle tone, is seen in the fur and skin folds due to chronic factors [7].

Pathophysiology. The main cause of respiratory distress syndrome is a decrease or low production of surfactant (a blood-clotting material). Surfactant ensures the growth of the airways and normal respiratory function. In premature infants, surfactant deficiency leads to respiratory failure.

Various medical tests are performed to diagnose RDS:

- Clinical examinations: Monitoring of respirations, rhythm and volume.
- Radiographic analyses: Assessing the condition of the respiratory system through X-ray images of the lungs.
- Arterial gases: To determine the degree of hypoxemia or hypocapnia.

Clinical monitoring and treatment. The following are the necessary treatment methods for infants with RDS: – Initial treatment: oxygen-enriched air or oxygen therapy is given to the infant. – Mechanical ventilation: This is used when necessary to reduce respiratory distress. – Surfactant therapy: In premature infants, surfactant or synthetic surfactants are used to stabilize the respiratory system. – Fluid and electrolyte balance: Restoring the body's fluid and electrolyte balance. – Antibiotic therapy: Antibiotics are used if there is evidence of infection [8,10].

Clinical features. The degree and severity of RDS can vary. Mild cases can be managed with induction or ventilatory support, but severe cases require intensive care and mechanical ventilation.

Prognosis and Successful Outcomes. With professional care and early therapy, most babies can make a full recovery from RDS. The first 72 hours are especially important for premature babies, as treatment is most effective during this time.

Recovery and rehabilitation. Respiratory distress syndrome in children can sometimes lead to recovery of respiratory function or long-term problems. They require long-term monitoring and rehabilitation treatment.

Based on this information, you should consider clarifications, studies, and available scientific sources when compiling your article. If additional information or sources are needed, I can help you find them. Clinical signs in premature babies with respiratory distress syndrome (RDS) can vary, but it is important to understand their main signs. These signs are related to a violation of the

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respiratory system or the functioning of the body as a whole. Below is information about the main clinical signs observed in babies with RDS. 1. Respiratory distress:

– Rapid breathing (tachycardia): Babies with RDS have rapid breathing. This condition may be related to hypoxemia (insufficient oxygen delivery to the blood).

– Difficulty breathing: Babies may have difficulty breathing, either due to damage to their airways or a lack of surfactant.

– Breathing movements or "swim" breathing: The baby's breathing is characterized by shallow or pressure-filled breathing movements. This condition is often the result of excessive pressure in the airway.

Cyanosis (blueness): – Cyanosis is common in babies with RDS, which is caused by a lack of oxygen in the blood. Cyanosis can cause bluish discoloration of the skin or lips, which is a sign of hypoxemia. Seeing cyanosis in a baby can indicate that there are serious problems with their respiratory system.

Agility and Injuries (Rhabdomyolysis): – Babies with RDS may experience fractures or physical complications in severe cases. In this case, babies may show decreased tone in their legs and arms and problems with complex movements. If movements are slightly reduced, this may be a new form of symptoms related to hypoxemia.

Nephrological signs: – In some cases, infants with RDS may have hypotension (low blood pressure) and edema. These conditions may indicate a disruption in the body's ability to absorb or properly function the respiratory system.

Tachycardia and hypotension: – Infants with RDS exhibit tachycardia (rapid heartbeat) and hypotension (low blood pressure). These symptoms are either due to a predisposition or pathogenesis. In particular, these symptoms can also occur as a result of hypoxia (lack of oxygen in the blood) and hypocapnia (lack of carbon dioxide in the blood).

Loss of milk and fur: - As a result of hypovolemia (decreased fluid in the body), some babies may experience loss of fur and milk. This condition often requires professional attention to maintain proper fluid and electrolyte balance during treatment.

Pulse oximetry and respiratory tests: – In addition to clinical signs, pulse oximetry (decreased oxygen in the blood) and arterial blood gas analysis are required to check the temperature and oxygen supply of the respiratory system. If the oxygen level is low, this may indicate hypoxemia.

Neurological signs: – In certain clinical situations, for example, if hypoxia is severe, neurological disorders may also occur. In such cases, infants may show signs of lethargy, stupor, or malaise.

Difficulty calming and latching on: – Babies with RDS may have new problems calming themselves or controlling themselves or improving their breathing. These symptoms indicate the need for long-term normalization of the respiratory system.

Conclusion: It is important to understand the clinical signs of premature infants with respiratory distress syndrome (RDS) and to adopt appropriate therapeutic measures in a timely manner. These signs indicate hypoxia, hypoxemia, and respiratory failure, and their treatment is essential to prevent exacerbation or remission of this condition.

The pathophysiology of premature infants with respiratory distress syndrome (RDS) is largely due to surfactant deficiency, respiratory failure, and hypoxemia. These pathophysiological

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mechanisms cause respiratory edema, interstitial and alveolar edema, hypoxia and hypocapnia, and endothelial and epithelial damage.

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