

An Overview on Newborn Respiratory Distress Syndrome

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DESCRIPTION

Neonatal Respiratory Distress Syndrome (RDS) is a common problem in premature babies. In this condition, the baby will have difficulty in breathing. Affected infants will have severe breathing difficulties and may appear blue due to lack of oxygen in their blood. Respiratory Distress Syndrome (RDS) occurs in preterm (premature) babies whose lungs are not yet fully developed. The sooner a child is born, the more likely it is for the baby to develop respiratory distress syndrome and require supplemental oxygen and respiratory support. Respiratory distress in the immediate postpartum period is common and is usually caused by abnormal respiratory function during the fetal-neonatal transition. Respiratory distress syndrome occurs around the 26th week of pregnancy when the baby's lungs don't have enough of a slippery substance called surfactant. More surfactant is produced by the lungs as the fetus grows.

Surfactant help the lungs fill with air and prevent the air sacs from collapsing. The air sacs must be open for oxygen to flow from the lungs to the blood and for carbon dioxide to be released from the blood to the lungs. Respiratory distress in newborns presents diagnostic and management challenges. Newborns with shortness of breath often exhibit tachypnea, with a respiratory rate of 60 breaths per minute or more. They may present with grunting, retractions, nasal flaring, and cyanosis. Common causes are neonatal transient tachypnea, respiratory distress syndrome.

The larger risk factors are for those:

- Siblings with RDS
- Twin or multiple births
- Delivery by caesarean section
- Mother with diabetes
- Birth problems that reduce blood flow to the baby
- Babies sick at the time of birth
- Colds, stress, hypothermia

A newborn baby cannot maintain a constant body temperature. In affected newborns, the lungs become stiff, the air sacs tend to collapse completely, and the lungs contract. Some very preterm newborns have lungs that are so stiff that they may not be able to start breathing at birth. Newborns often try to breathe, but their

lungs are so tight that they have severe difficulty breathing (shortness of breath).

Symptoms of shortness of breath include:

- Visibly labored, rapid breathing
- Retractions
- Flaring of the nostrils during breathing in
- Grunting while breathing out

Most of the lungs are constricted in this condition; newborns with respiratory distress syndrome have low oxygen levels in their blood and a bluish discoloration of Skin and/or lips (cyanosis). Over hours, shortness of breath tends to worsen as the muscles used for breathing become fatigued, the small amount of surfactant in the lungs is depleted, and the air sacs collapse more. If low oxygen levels are not treated, newborns can suffer with brain damage and other organ damage and may lead to death.

The diagnosis is made by examining the baby and looking at the results of chest x-rays and blood tests. A doctor should monitor vital signs, measure oxygen saturation with pulse oximetry, and blood gas testing may be considered. A chest x-ray is used for diagnosis and measurement of C-reactive protein is useful in evaluating sepsis. Most newborns with shortness of breath can be managed with respiratory support and non-invasive methods. If the fetus is born prematurely, the mother may be injected with corticosteroids to increase fetal surfactant production.

Babies with RDS need supplemental oxygen. It can be specified in various ways.

- Nasal Cannula: A tube with prongs inserted into the nostril.
- Continuous Positive Airway Pressure (CPAP): This device gently forces air or oxygen into the lungs to keep the air sacs open.
- Ventilator (for Severe RDS): This is a breathing aid for infants who cannot breathe adequately without assistance. The infant's trachea is fitted with a breathing tube. This is called intubation. The infant is then placed on a ventilator to help them breathe.
- Surfactant: It is given directly through a breathing tube placed in the trachea. Using the Insure technique, neonates are

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Received: 04-Aug-2022; **Manuscript No.** PTCR-22-19260; **Editor assigned:** 08-Aug-2022; **PreQC.** No. PTCR-22-19260 (PQ); **Reviewed:** 22-Aug-2022; **QC.** No. PTCR-22-19260; **Revised:** 29-Aug-2022; **Manuscript No.** PTCR-22-19260 (R); **Published:** 05-Sep-2022, DOI: 10.35841/2161-0665.22.S6.003.

Citation: Searle NS (2022) An Overview on Newborn Respiratory Distress Syndrome. *Pediatr Ther.* S6.003.

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intubated, given surfactant and rapidly extubated to nasal continuous positive airway pressure.

- **Intravenous (IV) Catheterization:** A very small tube called a catheter is inserted into one or two of blood vessels in the umbilical cord. Therefore, infants receive intravenous fluids,

food and medicines. Blood samples are also drawn using this method.

- **Medications:** Antibiotics may be given if an infection is suspected. A sedative may be given to reduce pain during treatment.