

Respiratory Distress Syndrome in Newborns (Hyaline Membrane Disease)

Premature infants can have breathing problems because of immaturity of the lungs. The earlier your baby is born, the higher the risk of such problems. The main cause is lack of a normally produced substance called surfactant in the lungs. Depending on the severity of respiratory distress, treatment may include oxygen, surfactant, and mechanical ventilation to help your baby breathe. Most premature infants with respiratory distress syndrome do fine, but serious complications are possible.

What is newborn respiratory distress syndrome?

Respiratory distress syndrome is a disease caused by incomplete development of the lungs in premature babies. It is sometimes called “hyaline membrane disease.” Other causes of respiratory distress in newborns are possible as well.

Your premature baby’s lungs don’t contain enough of a substance called surfactant, which helps the lungs expand with each breath. Especially if your baby is born very prematurely (before 28 to 32 weeks), breathing problems are usually apparent immediately at birth.

How is it treated?

Very small, very premature infants are at risk of various medical problems in addition to respiratory distress syndrome. These infants need a lot of special care in managing their body chemistry, temperature, blood pressure, and so forth. Careful attention to such “supportive” care may help to make respiratory distress syndrome less severe. If your baby has any other health problems related to prematurity, these need to be treated as well.

- Babies with respiratory distress syndrome often need treatment soon after birth. Your baby will be treated in the neonatal intensive care unit (NICU), where he or she can receive 24-hour care.
- If the lung problem is not too severe, additional *oxygen*, can be given through a mask that fits over the face and nose or through nasal prongs that fit in the nostrils.
- If respiratory distress syndrome is more severe, your baby may need *mechanical ventilation*. He or she will

be connected to a machine to help with breathing. The type of mechanical ventilation will be selected carefully to maximize your baby’s oxygen supply while minimizing the chances of damaging the lungs.

- When necessary, treatment with artificial *surfactant* can help to improve lung function. Surfactant treatment may be started at the same time as mechanical ventilation. In some babies, surfactant treatment is started immediately at birth.
- Making sure your baby has enough oxygen in the lungs is a very important part of treatment. Oxygen levels are checked frequently, especially in very premature babies.
- Most babies have an umbilical artery catheter placed to obtain blood and to check oxygen levels or to give fluids. A small catheter (thin tube) is placed in the umbilical artery; this is one of the blood vessels that connected the baby’s blood supply to the placenta in the womb. A catheter may also be placed in another vessel, the umbilical vein.
- Other treatments may be needed as well. The doctors, nurses, and other specialists in the NICU have the training and expertise needed to monitor your baby’s care. This team approach allows survival and full recovery of most premature infants. You will be allowed to visit and help with your baby’s care as much as possible.
- Mechanical ventilation and other treatments continue until your baby’s lungs have matured enough so that he or she can breathe independently. It is difficult to predict how long this will take, especially in very small premature infants.

What are some possible complications?

Respiratory distress syndrome is a serious disease, especially in very premature newborns. Treatment is needed to support your baby until his or her lungs mature enough for independent breathing. Serious complications are possible. Some are caused by the disease itself, while others are related to necessary treatments, especially mechanical ventilation.

- *Bronchopulmonary dysplasia* is injury to the lungs caused by mechanical ventilation. To help prevent or minimize this type of damage, your baby will receive only the mechanical ventilation needed to provide enough oxygen. Babies with bronchopulmonary dysplasia have more last-

ing breathing problems. This is a more likely complication in very premature babies who must stay on mechanical ventilation for a long time after birth.

- *Narrowing of the trachea (windpipe).* Damage may be caused by the breathing tube placed for mechanical ventilation.
- *Developmental problems.* This refers to lower intelligence and learning problems, and occurs mostly in very premature infants.
- *Blood clots.* Blood clots are related to the use of umbilical artery or vein catheters for monitoring.

Many other complications are possible in these seriously ill infants.

Can respiratory distress syndrome be prevented?

- Avoiding early labor and delivery is the best way to prevent premature birth and respiratory distress syndrome. In many cases, this is beyond the control of the mother or doctor.
- In some cases, if early delivery seems unavoidable, treating the mother with a steroid drug called betamethasone may reduce the risk and severity of respiratory distress in the infant.



When should I call your office?

Call our office if you have any questions about this condition or about your infant's treatment.