

Persistent Pulmonary Hypertension of the Newborn

What is persistent pulmonary hypertension of the newborn (PPHN)?

PPHN is the presence of blood flow through the lungs and heart just like that seen in the fetus (before the baby is born). While your baby was growing inside your womb, you did the breathing for him. Oxygenated blood went from your lungs, through your body, across the placenta, and to your baby. Therefore, your baby did not need to use lungs. Blood was shunted through two channels in the heart called the ductus arteriosus and the foramen ovale and bypassed your baby's lungs. However, after your baby is born, cries, and takes breaths, the pressure in the pulmonary (lung) vessels should decrease, therefore blood can travel to the lungs to get oxygen. When a baby has PPHN, the pressure in the pulmonary vessels does not decrease causing blood to shunt the wrong way (away from the lungs), as if the baby was still inside your womb. Therefore, your baby receives un-oxygenated blood to his body.

What causes it?

This condition is usually seen in near term, term, or post term infants. Symptoms are usually seen in the first twelve hours of life. Several factors can cause PPHN. One cause may be due to a stressful birthing process. The baby may stool, gasp, and inhale meconium (the first few stools which are thick, sticky, and pasty). The meconium can get into the baby's lungs and cause the baby to have difficulty breathing after birth. Other causes of PPHN may be cold stress, low blood sugar, low calcium, thickening of the blood, infection, or birth asphyxia (when the baby is deprived of oxygen during a complicated delivery).

What happened to my baby?

Your baby may begin to breathe faster (tachypnea) and your baby's chest may suck in (retractions) as if he were having a hard time breathing. Your baby will probably need to be placed on a breathing machine (ventilator). A nurse will need to give some medication (sedation) to help him/her rest. You may see a bluish discoloration of the skin (cyanosis) because of a decrease in oxygen. Your baby's blood pressure may also be low.

What can be done?

The nurses and doctors will take several blood samples to measure blood gases (how well the baby is breathing and receiving oxygen), electrolytes (sodium, potassium, calcium), sugar levels, and complete blood count (to see if the baby has an infection). Nurses will take frequent vital signs (temperature, breathing rate, heart rate, and blood pressure). The main goal is to get oxygenated blood to the rest of your baby's body. This will be done by the ventilator and medications. Your baby may need to be on a number of special medications:

- To increase his blood pressure (vasopressors-dopamine, dobutamine).
- To dilate the blood vessels in his lungs (inhaled nitric oxide (iNO)).

Your baby will have several IV lines and intravenous accesses to measure and monitor his condition.

PPHN is a **VERY SERIOUS** condition. Your baby's doctor is the best person to keep you informed of your baby's progress. Some babies show long-term developmental problems, therefore, your baby's development should be closely monitored.

What can I do as a parent?

Your baby will need to be in a quiet environment with few visitors. It is important that your baby gets the rest he/she needs. Keep up with your baby's progress each time you call or visit. Love, concern, and support all play an important part of your baby's progress. The staff will encourage parents to visit often.

You will be able to talk softly and touch your baby gently, but keep in mind that we need to promote his rest.