

Treatment for Pulmonary Interstitial Emphysema (PIE)



Pulmonary interstitial emphysema (PIE) is when air gets trapped in the tissue outside the tubes and air sacs of the lungs. It nearly always affects newborn babies. It's more of a risk for babies who are born preterm or with low birth weight, who are on a machine to help them breathe (ventilator). PIE is fairly common in neonatal intensive care units (NICUs). These infants often have a lung problem that's caused by preterm birth. PIE usually affects babies in the first few days of life. It may affect 1 or both lungs.

Types of treatment

PIE is a serious condition. It can cause death if not correctly treated. For this reason, treatment is done inside a NICU.

Treatment is done to make sure your child gets enough oxygen. It also aims to prevent more air leaks. Treatment may include:

- Laying your child on the side with the air leak, which helps move more air into the lung that's working well
- Lowering ventilator pressure, if possible, to help prevent more air leaks
- Using high-frequency oscillatory ventilation, which may lower pressure in the air sacs
- Giving extra oxygen

Your child's vital signs and levels of oxygen in the blood are checked during the treatment. Your child may also need X-rays to check on the status of the air leaks as they heal.

In most cases, PIE gets better with these treatments, and the leaked air goes away.

If your child has a severe localized case of PIE, the medical team may collapse the lung with the air leak for a short time. This is so the air sac can heal. This is done by placing a breathing tube into the lung without the air leak. Or air flow may be blocked for a short time to the lung with the air leak. Your child might need a breathing tube and ventilator support during this time.

In rare cases, a child might need to have part of a lung removed to treat PIE that does not go away.

Your child may also need treatment for other lung problems that may be causing the PIE.

Possible complications of PIE

PIE can sometimes cause pneumothorax. This is air in the space between the outer layer of the lungs and the chest wall. This can make breathing problems worse. If there's a large pneumothorax, your child may need to be on a ventilator machine. Or they may need to have a tube (catheter) inserted into the chest wall. This is to remove the air that's in the wrong space. PIE sometimes can lead to long-term (chronic) changes in the airway and lungs. These changes may need further treatment as your child grows.

Preventing PIE

Preventing preterm birth may help prevent PIE. You can decrease the chance of preterm birth by:

- Not smoking during pregnancy
- Not using alcohol or illegal drugs during pregnancy
- Getting prenatal care during your pregnancy
- Getting medical care at the first signs of preterm labor

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