Apnea of Prematurity (AOP)

Apnea means a period of time when breathing has stopped. Babies who are born early (*premature infants*) can have apnea episodes. When this happens it is called apnea of prematurity (AOP). This is a common problem. These are frightening episodes for parents, but they are treatable and infants outgrow them with time. Having AOP does not increase the risk of sudden infant death syndrome (SIDS).

CAUSES

There are two types of AOP. Babies often have both types:

- **Central** apnea is due to lack of maturity in the part of the brain that controls breathing. The more premature the infant is, the less well the brain controls breathing.
- **Obstructive** apnea is due to blockage of air passages. This can happen because premature babies have very small air passages that are not as strong as older babies. Air passages can get blocked by:
  - Too much mucus.
  - Collapsing on themselves.

SYMPTOMS

AOP episodes start after the first day and before the end of the 1st week of life. The more premature an infant is, the more often and severe the AOP episodes. During an episode:

- The baby's breathing pauses and may not start without help.
- The baby's heart rate drops.
- The baby may turn pale or blue.
- The baby may become limp.

DIAGNOSIS

AOP is diagnosed by:

- Observing the episodes.
- Testing for other causes of apnea besides AOP.

TREATMENT

AOP gets better as the baby's body matures. It often goes away about 37 weeks after conception (when the pregnancy started). It may last longer in some cases. Once it is gone, it does not come back.

Treatment is done in a special nursery. A monitor measures the breathing and heart rate. Alarms go off when the monitor detects possible problems. If the alarm goes off, depending on how the baby looks, the nurse may:

- Check to see if the baby is breathing and how he or she looks.
- Check the monitor and leads (they can fall off).
- Watch to see if the baby's breathing starts up on its own.
- Change the baby's position.
- Suction mucus from the nose.
- Gently rub the baby's skin.
- Give a few breaths of oxygen or just air from a bag and mask.

If the apnea spells are severe or frequent other treatments may be used:

- Medicines that stimulate the part of the brain that controls breathing.
- Nasal CPAP (Continuous Positive Airway Pressure). Air or oxygen under gentle pressure is given through a tube in the nose to:
  - Keep the air passages open.
  - Make breathing easier.
- Ventilator. This machine breathes for the baby through a tube placed in the baby's windpipe or in the baby's nose.

Treatment of other problems that can cause apnea is sometimes needed. This may include:

- Antibiotics for infection.
- Blood transfusions for anemia.
- Treatment of body minerals being out of balance.

HOME TREATMENT

AOP usually resolves before babies are sent home. Some babies are sent home with an apnea monitor. Home apnea monitors measure heart rate and breathing rate but usually do not measure the amount of oxygen. They alarm when they detect problems. Home apnea monitors are not perfect safeguards. Sometimes home apnea monitors fail to alarm even if there is a problem (for example if the apnea monitor is not correctly connected to the baby). Home apnea monitors can store readings that can be downloaded to a computer. Your baby's caregiver can analyze these readings later.

- Before the baby leaves the hospital, you will be taught how to use the monitor.
- You will learn how to respond to an alarm.
- Parents and caregivers should be trained in infant CPR (Cardio Pulmonary Resuscitation). It is unlikely you will ever have to use it, but it is important knowledge to have.
- If your baby is not breathing or your baby's face seems pale or blue, follow the instructions given to you. Usually, your response will involve some gentle stimulation techniques. If these do not work, start CPR and call for emergency help (911 in U.S.). Do not shake your baby to wake him/her.
- Having a baby at home on an apnea monitor can be stressful. It becomes easier with time.
- Your child's caregiver will determine how long your baby will wear the monitor.

SEEK MEDICAL CARE IF:

- You have any questions or concerns about home monitoring.
- You or your family need help coping with the stress of home monitoring.

SEEK IMMEDIATE MEDICAL CARE IF:

- Your baby does not respond to stimulation techniques and is blue.
- You have started CPR.

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