# Apnea Of Prematurity

## Characteristics

- Respiratory pause for at least 20 seconds, or a pause that is accompanied by bradycardia (heart rate <100 bpm), cyanosis, or pallor in an infant <37 weeks postmenstrual age (PMA).
- Types of apnea:
  - Central: the respiratory center in the immature brain stem does not trigger inspiration; frequently responds to methylxanthine treatment.
  - Obstructive: due to impaired tone of larynx/pharynx.
  - Mixed: combination of the two; most common type found in neonates.
- Can persist for many weeks in very preterm infants, although resolution typically occurs by 37-43 weeks PMA (resolution tends to be later for extremely low-birthweight infants).
- Periodic breathing: recurrent sequences of pauses in respiration lasting 5-10 seconds, followed by 10-15 seconds of rapid breathing without bradycardia or other symptoms.
- Benign apnea: isolated apneas of 5-10 seconds, without bradycardia or color change; resolve spontaneously.

## Home Treatment

- Most infants still having apnea are kept hospitalized; few may be discharged home.
- Methylxanthines: act primarily on the brainstem respiratory structures, producing a central stimulatory effect.
  - Caffeine is most commonly used due to its broader therapeutic index and slower excretion rate than theophylline.

## Cardiorespiratory Home Monitors

- Infants are generally monitored for a 5- to 7-day apnea-free period after discontinuing methylxanthine therapy before sending an infant home without a monitor.
- Home monitors are rarely indicated for the detection of apnea, because infants with immature respiratory systems are generally still hospitalized until they are no longer at risk for apnea of prematurity.
- Any home cardiorespiratory monitor used must have download capability.

- Monitoring may be prescribed for some preterm infants with an unusually prolonged course of recurrent, extreme apnea.
- Monitoring should be limited to approximately 43 weeks' PMA or after the cessation of extreme episodes, whichever comes last.

## Additional Factors

- Preterm infants are known to be at higher risk for SIDS; high-risk period lasts up to 10 months.
- As "a causal relationship between prolonged apnea and SIDS has not been established," home cardiorespiratory monitoring should not be used to prevent SIDS (AAP Task Force on Prolonged Infantile Apnea, 2003).
- Premature infants beyond the immediate neonatal period can experience apnea following ketamine sedation or general anesthesia; they should have cardiorespiratory monitoring in hospital for 24 hours after surgery.