A LINE ON LIFE

4/14/96

Sudden Infant Death Syndrome *

David A. Gershaw, Ph.D.

SIDS (**Sudden Infant Death Syndrome**) is often called "*crib death*." One in 7,000 infants in the United States die each year from SIDS. Rather than accidentally smothering, crib deaths seem to be caused by a weakening of the breathing response.

In a 1981 study of some 70 SIDS cases, Lewis Lipsett and his associates found some characteristics that differed from control infants. More SIDS infants were suffering from mild colds at that time. They had lower birth weight, and their mothers had been anemic – having fewer red blood cells to carry oxygen – during pregnancy. SIDS mothers were also "*more likely to be smokers, ill, less educated, of lower socioeconomic status, and living in more crowded situations*." These combined characteristics could be related to breathing failure.

Breathing failure during sleep is called **sleep apnea**. If adults have this, they stop breathing, but then they usually wake up and start breathing again. However, it does interfere with their sleep, so they are very sleepy during the day.

Anything that interferes with a newborn's ability to breathe, such as a cloth covering its face, triggers a rage-like crying and struggling reflex. This rage reflex usually restores normal breathing conditions. (A similar reaction can be obtained, if the newborn's head is held, so the baby cannot move it.)

However, like many reflexes, the rage reflex gradually disappears between 2-4 months after birth. As this happens infants *learn* to struggle in response to breathing blockages. Even with colds or stuffy noses, this learned rage response helps them to resume breathing.

Lipsett believes that SIDS may be caused by a **learning disability**. Somehow, SIDS infants have not learned this rage response quickly enough. This may be the reason most crib deaths occur in the first four months of life. If the child is over 8 months old, SIDS is extremely rare. It seems that infants are at greatest risk as the rage reflex disappears, but they have not yet learned to struggle.

!n 1972, through autopsies, researcher Alfred Steinschneider found some brain differences, which were linked to hypoventilation – inadequate breathing. Unlike infection or disease, hypoventilation is related to underdeveloped organs and small body size.

Compared with infants who died from other causes, 1 1984 study found SIDS infants had higher levels of a brain neurotransmitter called **dopamine**. High levels of dopamine decrease respiration rates. Lipsett notes that dopamine levels are also related to memory problems and even Alzheimer's disease. If it affects memory in adults, it might also affect the infant's ability to learn the rage response.

Although SIDS does run in families, it is not solely an inherited problem. The incidence of SIDS is the same among both identical and fraternal twins. (If it was solely inherited, the frequency would be higher among identical twins.) Even so, many researchers think that there is a genetic predisposition for SIDS.

Anywhere from 5-40% of crib deaths may be linked to **botulism** – caused by a bacterial toxin (poison) usually obtained from improperly preserved foods. Since the toxin causes nerve paralysis, infants seem to be "*floppy*" and listless. Victims of infant botulism are often called "***floppy babies***." If this is combined with the genetic predisposition for SIDS, it is more likely to be fatal.

SIDS is not one disease – it is merely a description of what occurs. It can have many different causes. A 1985 study found some links to abnormal electrical impulses that stimulate the heart or an abnormal location of the heart. A1980 study linked SIDS to a lower level of a B-complex vitamin. According to the study, this vitamin deficiency is related to "*a condition in which SIDS can be triggered by mild stress, for example, a missed meal, excessive heat or cold or a changed environment*."

In 1980 in England, another link was made between excessive heat and SIDS. Researchers found similarities between heat-stroke victims and SIDS infants. Investigators often noted that SIDS babies "*were judged to have been excessively clothed or covered at the time of death*."

Rather than merely frightening parents, we want to provide ways to reduce the likelihood of SIDS. Especially in avoiding botulism, there is much parents can do. Since *honey* is a potential source of the toxin, physicians urge parents *not* to feed honey to infants under 6 months of age. To avoid botulism from vegetables and fruits, they should be peeled and well-cooked before giving them to your infant. Unclean objects – even a dropped pacifier – can carry botulism spores. Objects that an infant will put in its mouth should be cleaned.

To see if your baby is at risk, there is an easy way to check. If its head is held so it can't be moved, the infant should exhibit a normal rage response. If that does not happen, take your child to your physician for further testing.

Even if your child is at risk, there is much you can do. Monitors are available that will sound an alarm when the baby stops breathing. In 1979 at Massachusetts General Hospital in Boston, 260 babies were judged at high risk for SIDS. They were linked to electronic monitors. When breathing stops, the monitor emits an alarm to bring help. Of the 260 at-risk babies, the alarm sounded for 156 and brought them immediate help. Physicians believe that – without this help – all but 4 of the 156 would have resulted in crib deaths.

Since these monitors vary in quality and price, consult your physician or local health service to find a monitor that will suit you and your child.

---

* Adapted from John P. Dworetsky's *Introduction to Child Development*, West Publishers, 1987, pages 138-140.