

A review of infant sleep recommendations and Sudden Infant Death Syndrome (SIDS)

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Introduction and Relevance:

In the early 1990s, a sharp fall in the numbers of sudden unexpected infant deaths (SUID) followed the back-to-sleep intervention campaign in many countries ; this has been one of the striking achievements of applied epidemiology in the field of child health in the modern western society.

In an updated policy statement and technical report released in 2011, the American Academy of Pediatrics expanded its guidelines on safe sleep for infants, with additional information for parents about creating a safe sleep environment in order to minimize preventable SUID cases.

Definitions:

- ⇒ SIDS refers to infant deaths that cannot be explained after a detailed case investigation (scene investigation, autopsy, and review of the clinical history).
- ⇒ SUID refers to any sudden and unexpected death, including SIDS, that occurs during infancy. After investigation, SUID can be attributed to suffocation, asphyxia, entrapment, infection, metabolic diseases and trauma. The distinction between SIDS and SUIDs is challenging and cannot be done by autopsy alone.
- ⇒ INCIDENCE: although rare, SIDS is the leading cause of non-accidental deaths between 1 month and 1 year of age, annually affecting one in 3000 babies in the UK and 1 in 2000 in the USA. ⁽¹⁻⁴⁾

Pathophysiology and Genetics of SIDS:

The confluence of an external stressor, a critical period of development and an intrinsically vulnerable infant are encapsulated in a triple risk model. These factors combined result in progressive asphyxia, bradycardia, hypotension, metabolic acidosis and gasping, leading to death.

The mechanism responsible for this dysfunctional protective response remains unclear, but might be result of in utero and/or genetic determined delay in maturation or maldevelopment.

Infants who die from SIDS are more likely to be born with low birth weight (LBW) or with intrauterine growth restriction (IUGR), suggesting an adverse intra-uterine environment ; other adverse in utero conditions include: exposure to components of cigarette exposure or alcohol.

In infants, prenatal exposure to tobacco smoke attenuates recovery from hypoxia; it also alters the normal relationship between heart rate and gestational age at birth, as well as cardiovascular reflexes such as the expected increase in blood pressure with carbon dioxide breathing. These changes in autonomic function, arousal and cardiovascular reflexes may increase their vulnerability to SIDS.

Brainstem abnormalities that involve the medullary serotonergic system in up to 70% of infants who die from SIDS are the most specific finding associated with SIDS. This area coordinates respiratory, arousal and autonomic functions and when dysfunctional, might prevent normal protective responses to stressors that occur during sleep.

There is no evidence of a strong hereditary contribution to SIDS, however, genetic alterations that increased the vulnerability to SIDS have been observed.⁽³⁾

SIDS Risk Factors:

Over the course of the last twenty years, SIDS risk factors have been identified through epidemiological studies, and are as follows:

Prone and side sleep position, maternal smoking during pregnancy, environmental tobacco smoke, male (3:2), overheating, soft bedding, inadequate prenatal care, young maternal age, prematurity and low birth weight. ⁽¹⁻⁴⁾

Key Recommendations:

- Back to sleep for every sleep;
- Use a firm sleep surface;
- Room-sharing without bed-sharing is recommended;
- Keep soft objects and loose bedding out of the crib;
- Pregnant women should receive regular prenatal care;
- Avoid perinatal smoke exposure during prenatal period;
- Avoid alcohol and illicit drug exposure during perinatal period;
- Breastfeeding is recommended;
- Consider offering a pacifier at nap time and bedtime;
- Avoid overheating;
- Do not use home cardiorespiratory monitors as a strategy for reduction of SIDS;
- Expand the national campaign to reduce the risks of SIDS. ⁽³⁾

A Note on Bedsharing:

Bedsharing is the most alive of all controversies. There are some particular dangerous situations that we should advise parents against bedsharing:

- If 1 or both parents are smokers (OR 2.3-17.7);
- Infant less than 3 months of age, regardless of parental smoking status (OR 4.7-10.4);
- Infant placed on very soft surface: waterbeds, sofas, armchairs (OR 5.1-66.9). ^(2,3)

Reflection and Conclusion:

Counseling families in Primary care pediatrics is a complex task. We should balance the child's individual needs and wellbeing, taking into account cultural values and expectations.

A holistic view is preferred. Clinicians can discourage infant-care practices that don't support normal infant physiology (such as prolonged solitary sleep and early sleep consolidation), encourage parental proximity and responsiveness (room sharing, but not bedsharing) as well as educate parents about infant developmental needs.

Health care providers from all levels of care should model safe infant sleep practices, starting at the maternity wards. Primary care doctors should be prepared to provide culturally competent advice focused on minimizing risk and increasing health literacy on safe infant sleep practices." ⁽¹⁻⁴⁾

References:

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