

MEDICINE

Fatal Child Abuse and Sudden Infant Death Syndrome (SIDS): Can We Tell the Difference?

—by Robert M. Reece

National statistics during 1991 indicated that 1,241 child homicides occurred in the United States. Some contend that this figure is inaccurate and is based on incomplete information, since child fatality investigations are so variable in the many jurisdictions of the country. Others have estimated as many as 5,000 annual cases, but this statistic is likewise subject to questions of validity. There is little question that better data on this subject are needed. Also needed are better means to distinguish between child homicide, medical conditions leading to sudden death, and the entity known as sudden infant death syndrome (SIDS).

SIDS is high on the list for possible confusion with child homicide since the diagnosis of SIDS depends on a postmortem examination and a death scene investigation, two activities that occur regularly in only a small proportion of infant deaths. The significance is self-evident: coroners and medical examiners are responsible for determining and reporting the cause and manner of death; pediatricians and family physicians are mandated to report child abuse to child protection agencies; child protection agencies, in turn, must insure that other children in the same home are protected, and that police and prosecutor's offices are informed if child abuse is suspected. Conversely, if the death is due to SIDS or another medical condition, innocent parents must be protected in their time of tragedy from wrongful accusations. They should be given the available necessary information about why their baby died and counseling to avoid compounding their grief.

An almost simultaneous evolution of knowledge has occurred in child abuse and SIDS during the last forty years. Werne and Garrow (1953) and Adelson and Kinney (1956) were pathologists seeking the cause of infant deaths in the middle of this century. Other pathologists (Beckwith, 1973; Beckwith, 1988; Krous, 1984; Krous, 1989; Smialek, 1988, and Norman, 1984) as well as a wide array of scientists from diverse fields of interest, have become

intrigued with the mysterious nature of sudden infant death syndrome. The pediatric pathologist most familiar to her colleagues and the lay public alike for her efforts in clarifying the medical complexities of SIDS has been Dr. Marie Valdes-Dapena (1982; 1992) who has persistently sought answers to parents' questions in cases of SIDS. Determining the cause of this phenomenon has been elusive, but as new information has developed, the broad scope of theories about what is responsible for "crib death" has been narrowed and real progress has been achieved to focus attention on the more plausible and scientifically credible hypotheses.

The definition of SIDS as promulgated by the

National Institute of Child Health and Human Development in 1989 is: "The sudden death of an infant under one year of age which remains unexplained after the performance of a complete postmortem investigation, including an autopsy, and examination of the scene of death and review of the case history." The overall SIDS incidence rate in the United States is currently 1.4 deaths per thousand live births. In 1988 there were 5,476 deaths attributed to SIDS. There are differences in incidence rates in this country among various racial groups: among African-Americans the rate is 2.26/1000; among the Northern Plains Indians, the rate is 10/1000, but the role of race is confounded by socioeconomic factors. One group of researchers has concluded that there is a consistent inverse relationship between SIDS and socioeconomic status (SES). Whether the SES effect acts as a confounder, effect modifier, or intermediate variable is still unclear.

Clinical presentation of SIDS

When SIDS occurs, typically a parent or other caretaker puts an apparently healthy infant to bed as usual and later discovers that she/he is lifeless in the crib. In a panic the caregiver calls for medical assistance, and, despite efforts at resuscitation, the baby is ultimately pronounced dead. Most victims of SIDS are between two and four months of age but SIDS can occur anytime through the twelfth month of age. Very few cases occur in the first week of life and approximately 90% of cases have occurred by six months of age. Often the baby has recently been declared healthy by a physician during a routine "well baby" visit. The death is completely unexpected. There is a preponderance of male victims over female (60-70% male:female ratio). Deaths are more common in the winter months but occur at all times during the year. SIDS occurs more commonly in infants of lower socioeconomic status mothers, in babies with lower than average birth weights and in multiple births (twins, triplets, etc.) Mothers of future SIDS babies are more likely to have smoked cigarettes during pregnancy. Certain other so-called risk factors — illnesses before the death, subtle neurological abnormalities during the neonatal period, more frequent reports of rapid breathing or heart action, blue spells and vomiting — have been described in a variety of populations, but no one factor or combination of factors has been sufficiently powerful to predict future SIDS babies. Moreover, most of the infants succumbing to SIDS have none of these characteristics.

In Peterson's (1986) study of risk reoccurrence within families, there was no statistically significant difference in SIDS rate or in total infant mortality rates in families with a history of SIDS compared with families with no SIDS. This dispelled the previously held notion that having one SIDS baby raised the risk of SIDS in subsequent pregnancies.

Clinical presentation of fatal child abuse

Caffey's early paper on subdural hematoma and
continued on next page

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Medicine

-Robert M. Reece

continued from page 11

fractures of long bones appeared in 1946, six years before Werne and Garrow (1953) and nine years before Adelson and Kinney (1956) had reported on infant death. In 1953, Silverman postulated that these injuries were the result of unrecognized trauma and Adelson, in 1961, reported on 46 child homicides, of whom 10 were less than one year of age. Of the ten, five had died of drowning, three of starvation, and in two the cause of death was not reported. Thirty years later, Adelson (1991) described 194 child homicides, of which only 28 occurred before one year of age and sixteen of whom were under six months of age. All of these were obviously fatally battered and not confused with SIDS. Emery and Taylor (1986) reported on a 24-year period in England (1960-1984), during which deaths under 24 months of age were reviewed. They concluded that suffocation accounted for 10% of these deaths. The possibility of active intervention on the part of one or both parents was raised in another 10%, but specific

data on infants between one month and twelve months were not reported. The manifestations of fatal child abuse are too numerous to recount here, but have been described in a plethora of publications over the last 50 years, summarized in recent periodicals and books.

The parallel development of interest in the medical community about child abuse and SIDS is probably in

part due to the advent of antibiotics and immunizations, innovations that reduced the mortality rate in children making infant death a much rarer event than ever before. Since it became increasingly uncommon for babies to die, when it did happen, curiosity was aroused. The inevitable question when an infant died suddenly and unexpectedly was raised: Was this child a victim of homicide? To the many parents of SIDS infants, the question became anathema. Parent groups formed to raise money for research into the reasons for their baby's death as well as to defend themselves against those who would accuse them of harming their children. Ultimately the various groups merged into the SIDS Alliance. This organization's mission is to raise public awareness about SIDS, provide information to parents, and to encourage research into the cases of SIDS.

The autopsy

Postmortem examination in cases of unexpected infant death in the sine qua non in diagnosis. The findings typical of SIDS have been summarized by Valdes-Dapena (1982; 1992) and Huff (1986). Postmortem examinations in fatal child abuse demonstrate that the causes of death are injuries to the head or abdominal viscera, burns, drowning, gunshot wounds, exposure, suffocation, poisoning, or a combination of these. Radiographic imaging has gradually been introduced into these postmortem examinations with the use of the "skeletal survey", an

examination employing numerous high detail projections of the skeleton (Kleinman, 1989), adding immeasurably to the information derived from the autopsy.

Scene investigation and child death review

Prompt investigation by protocol of the scene of death should be the standard in all infant and childhood deaths. Delay of this important activity risks losing important documentation of the possibility of environmental risk factors as well as risk factors associated with the sleeping conditions of the infant. Prompt interviewing of the caretakers is needed to ascertain details of the infant's situation when first discovered. Assembling information from medical providers, family members, relatives, neighbors, and the local child protection agencies helps complete the diagnostic process. This investigation, if conducted sensitively and with concern for the feelings of the family, can be useful in the later counseling of innocent parents who have lost their baby because of a medical condition or SIDS. The investigation is critical if child abuse is to be established. Review of all information by a child death review team, consisting of at least the medical examiner or coroner, a pediatrician knowledgeable about both child abuse and other medical conditions responsible for child fatalities, representatives from local child protection agencies, law enforcement and the prosecutor's offices. The approach, composition, and function of such teams has been outlined superbly in a series of manuals published jointly by the Child Maltreatment Fatalities Project of the American Bar Association Center on Children and the Law and the American Academy of Pediatrics (Granik; Kaplan).

Since child abuse is a contributory factor in a substantial portion of infant deaths, the following recommendations are offered for death ascertainment:

1. Accurate history-taking by emergency responders and medical personnel at the time of death and made available to the medical examiner or coroner
2. Examination of the dead infant at a hospital emergency department (Often such infants are taken directly to the morgue, depriving the case of clinical appraisal prior to autopsy.)
3. Protocol postmortem examinations within 24 hours of death, including toxicology and metabolic screening when deemed appropriate in the context of the complete evaluation of the infant's death
4. Prompt death-scene investigation by knowledgeable individuals including careful interviews of the household members
5. Collection of previous medical records from all sources of medical care and personal interviews of key medical providers
6. Detailed collection of medical history from care-

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continued on next page

Medicine

-Robert M. Reece

continued from page 12

An almost simultaneous evolution of knowledge has occurred in child abuse and SIDS during the last forty years.

7. Locally based infant death review teams to review the collected data with participation of the medical examiner or coroner in the review
8. Use of accepted diagnostic categories on death certificates as soon as possible after review
9. Prompt informing sessions with parents when the results indicate SIDS as causation of death (High-quality medical examiners' offices inform parents of SIDS cases as soon as the results of the gross autopsy findings are available.)

10. Recognition of all the diagnostic elements comprising the decision about infant deaths (Table)
11. Maintenance of a supportive approach to parents during the death review process
12. Adequate funding of this critical process, both for death ascertainment and for the protection of all infants and children
13. Stimulation and support of more research into the etiology of both SIDS and child abuse.

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TABLE. Criteria for Distinguishing SIDS from Fatal Child Abuse and Other Medical Conditions

	Consistent With SIDS	Less Consistent With SIDS	Highly Suggestive or Diagnostic of Child Abuse
History surrounding death	Apparently healthy infant fed, put to bed. Found lifeless. Silent death. EMS resuscitation unsuccessful.	Infant found apneic. EMS transports to hospital. Infant lives hours to days. Substance abuse, family illness.	History atypical for SIDS. Discrepant history. Unclear history. Prolonged interval between bedtime and death.
Age at death	Peak 2-4 mo. 90% <7 mo. Range 1-12 mo.	8-12 mo.	>12 mo.
PE and laboratory studies at time of death	Serosanguinous watery, frothy, or mucoid nasal discharge. PM lividity in dependent areas. Possible marks on pressure points of body. No skin trauma. Well-cared-for baby.	Organomegaly of viscera. Stigmata of disease process (PE, laboratory, x-ray).	Cutaneous injuries. Traumatic lesions of body parts (conjunctiva, fundi, scalp, intraoral, ears, neck, trunk, anogenital extremities, malnutrition, neglect, fractures).
History of pregnancy, delivery, and infancy	Prenatal care—minimal to maximal. Frequent history of cigarette use during pregnancy. Some future SIDS victims are premature or LBW. Subtle defects in state, feeding, cry, neurological status (hypotonia, lethargy, irritability). Less postneonatal height and weight gain. Twins, triplets. Spitting, GE reflux. Thrush pneumonia illnesses requiring hospitalization, tachypnea, tachycardia, cyanosis. Usually: No signs of antecedent difficulty.	Prenatal care—minimal to maximal. History of recurrent illnesses and/or multiple hospitalizations. "Sickly" or "weak" baby. Specific diagnosis of organ system disease.	Unwanted pregnancy. Little or no prenatal care. Late arrival for delivery. Birth outside of hospital. Few or no well baby care. No immunizations. Use of cigarettes, drugs/alcohol during and after pregnancy. Baby described as hard to care for or to "discipline." Deviant feeding practices.
Death scene investigation	Crib, bed in good repair. No dangerous bedclothes, toys, plastic sheets, pacifier strings, pellet pillows. No cords, bands for possible entanglement. Accurate description of position with attention to possible head/neck entrapment. Normal room temperature. No toxins, insecticides. Good ventilation, furnace equipment.	Defective crib/bed. Use of inappropriate sheets, pillows, sleeping clothes. Presence of dangerous toys, plastic sheets, pacifier cords, pellet pillows. Cosleeping. Poor ventilation, heat control. Presence of toxins, insecticides. Unsanitary conditions.	Chaotic unsanitary crowded living conditions. Evidence of drugs/alcohol. Signs of terminal struggle in crib, bed, bedclothes or other equipment. Discovery of blood-stained bedclothes. Evidence of hostility by caretakers. Discord between caretakers. Display of violence between caretakers. Admission of harm. Accusations.
Previous infant deaths in family	First unexplained and unexpected infant death.	One previous unexpected or unexplained infant death.	More than one previous unexplained or unexpected infant death.
Autopsy findings	No adequate cause of death at PM. Normal: skeletal survey, toxicology, chemistry studies (blood sugar may be high, normal, or low), microscopic examination, metabolic screen. Presence of: large numbers of intrathoracic petechiae; dysmorphic, dysplastic, or anomalous lesions; gliosis of brainstem; sphincter dilation. Occasionally subtle changes in liver, including fatty change and extramedullary hematopoiesis.	Subtle changes in liver, adrenal, myocardium. Few or no intrathoracic petechiae.	Traumatic cause of death (IC or visceral bleeding). External bruises, abrasions, or burns. No intrathoracic petechiae. Malnutrition. Fractures. Subgaleal hematoma. Abnormal body chemistry values (Na, Cl, K, BUN, sugar; liver, pancreatic enzymes; CPK). Abnormal toxicology.
Previous CPS or LE involvement	None	One	Two or more. One or more family member arrested for violent behavior.

* Abbreviations: SIDS, sudden infant death syndrome; EMS, emergency medical services; PM, postmortem; PE, physical examination; LBW, low birth weight; GE, gastroesophageal; WBC, well baby care; IC, intracranial; BUN, blood urea nitrogen; CPK, creatine phosphokinase; CPS, children's protective services; LE, law enforcement.

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MENTAL HEALTH

Individual Treatment of the Sexually Abused Child

—by Julie A. Lipovsky and Ann N. Elliott

The current state of knowledge regarding treatment of sexually abused children is simultaneously vast and limited. The knowledge is vast as a result of the many excellent resources published by clinicians who have shared their perspectives on treatment (e.g., Berliner & Wheeler, 1987; Friedrich, 1990; Gil, 1991; James, 1989). However, the state of knowledge is limited by the lack of an empirical foundation informing the field about the effectiveness of treatment approaches for reducing behavioral, emotional, and cognitive difficulties associated with sexual abuse experiences. The discussion that follows will highlight various aspects of abuse-focused treatment that are commonly recommended by clinicians. Several controlled treatment outcome studies currently are in progress and are designed to examine empirically the efficacy of such approaches.

Assessment

Child Functioning

The list of symptoms and psychiatric difficulties found among child victims of sexual abuse is long and varied (see Beitchman, Zucker, Hood,

DaCosta, & Ackman, 1991; Kendall-Tackett, Williams, & Finkelhor, 1993 for reviews). Furthermore, sexual abuse experiences are themselves quite diverse. Therefore, it is essential that specific treatment approaches be informed by a comprehensive evaluation of the child's current presenting problems, the nature of the abuse, the context in which abuse occurred, and the consequences of disclosure or discovery. The goal of the clinical assessment is not to determine whether or not the child has actually been abused. Rather, the goal is to develop a framework for understanding the behavioral, emotional,

and cognitive functioning of the child within his or her current environment in order to guide the process of treatment. The assessment process is designed to identify targets for intervention as well as factors which may mediate the child's response to the abuse

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and which may affect the progress of treatment.

The effects of sexual abuse tend to occur on a continuum from neutral to negative (Friedrich, 1990), and no single syndrome has been identified as common for the majority of child victims (e.g., Beitchman et al., 1991). Therefore, a significant portion of the assessment process will be directed towards determining the impact that the abuse has had on the particular child presenting for treatment. The most commonly noted psychosocial problems among children who have been sexually abused are sexualized behaviors, anxiety, depression, poor self-esteem, general behavior problems, and Post-Traumatic Stress Disorder (PTSD; e.g., Kendall-Tackett et al., 1993). Suicidal ideation/behavior, substance abuse problems, dissociation, and faulty or maladaptive cognitions also may be present and are worthy of assessment (Berliner, 1991).

Features of the abuse experience

In addition to evaluating the child's current behavioral, emotional, and cognitive functioning, assessment focuses on the particular features of the child's sexual abuse experience. Important factors to be addressed include the nature of the relationship between child and offender, frequency and duration of abuse, level of force or threat used by the offender, and whether or not sexual penetration occurred. These factors tend to be associated with the impact of abuse (Kendall-Tackett et al., 1993). Assessment should also address whether or not the child has been exposed to other types of traumatic events or maltreatment (e.g., physical abuse, neglect, witnessing violence within the family or the community) which may affect his or her response to the sexual abuse. The context of disclosure, including familial and community responses, also potentially influences the child's adjustment. Assessment of the child's family environment and support (i.e., attitudes towards the child and the abuse) is important since research has demonstrated that maternal support mediates the effects of child sexual abuse (e.g., Everson, Hunter, Runyan, Edelsohn, & Coulter, 1989). The cultural context in which the child lives also is influential and should be examined within the assessment process.

continued on next page

Medicine

—Robert M. Reece

continued from page 14

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