PUBLIC HEALTH REPORT

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Sudden Infant Death Syndrome (SIDS)

EACH YEAR, SOME 800 CALIFORNIA infants under one year of age, most of them appearing to be in good health, are put to bed by their parents at night and unexpectedly are found dead in the morning. A variety of names have been used to describe this situation, but *Sudden Infant Death Syndrome* (SIDS) seems to be best. The following definition of SIDS proposed at the Second International Conference on causes of SIDS has been adopted by the State Department of Public Health: "When death occurs in an apparently normal infant (age one week to one year) who died unexpectedly and suddenly, with lack of physical or autopsy evidence to adequately explain the death, the diagnosis 'Sudden Infant Death Syndrome' should be used on the death certificate and coded under I.C.D.A. code (8th edition), 795 Sudden Death (cause unknown)."

At the beginning of this same conference Dr. A. B. Bergman said, "It is now possible to say that Sudden Infant Death Syndrome is a real disease, not a vague mysterious killer." It is clear that there is a basic pathological mechanism responsible for the vast majority of these deaths, even though at present we cannot describe it in detail. It should be emphasized that efforts must be made, including detailed autopsy and indicated laboratory studies, to determine the cause of death. If in the opinion of the coroner or pathologist a reasonable explanation for the sudden death can be made, the death should be ascribed to that particular cause and the appropriate I.C.D.A. code used. Only where the findings fail to provide a sufficient explanation would the death be attributed to SIDS.

A typical history reveals the victim to be an *infant* between the ages *two and four months* (90 percent between one and nine months, average age 2.8 months) who had been *previously in good health*, who may have had *minimal minor respiratory symptoms* immediately preceding, but who was put to sleep in the usual manner and was found dead in half of the cases *between midnight and 6 a.m.* There is an increased chance that this "typical" infant is male (60 percent) and comes from a socioeconomically disadvantaged family, from a premature or multiple birth, or from a Negro family and that the mother was younger than the average.

Of the infants who die unexpectedly, 15 to 44 percent show pathological findings which adequately explain the death and allow the death to be assigned to a specific cause. Definite and unequivocal findings which could produce death are lacking in the remaining cases. In 85 to 90 percent of these infants who die unexpectedly, and for whom the cause of death is not clear, there are some specific and predictable autopsy findings such as pulmonary and pharyngeal edema and petechial hemorrhages sharply limited to the thoracic contents. This combination of lack of specific cause and minimal but consistent findings on autopsy is the essence of the operational definition of SIDS.

Many theories as to the exact mechanism and cause of SIDS have been proposed: mechanical suffocation, hypersensitivity to cow's milk, deficient levels of immunoglobulins, parathyroid defi-

ciency, spinal injury, adrenocortical insufficiency, bacterial or viral infection and toxic agents. Careful evaluation has failed to establish any of these as significant causal factors.

It is suggested by Dr. Edward Shaw that since 30 percent of infants are obligate nose breathers with already narrow nasal passages, they are at risk of suffocation when there is further airway narrowing due to inflammation during a mild respiratory infection.

Neurophysiological studies show that during normal sleep small infants can be apneic 5 to 10 percent of the time. During a virus infection these spells may increase to 25 to 30 percent of the time. Also, it has been shown that the reactivity of the autonomic nervous system varies. Maturation seems to be reached around 2 to 3 months of age, so that normal protective automatic mechanisms may not be fully developed until after that time. The immediate cause of death in SIDS is probably laryngospasm. Normal developmental changes occurring in the early months postnatally within the bundle of His and the A-V node may cause fatal arrhythmias under certain otherwise innocuous conditions.

It is probable that there is no single event that triggers the pathological mechanism but that one or a series of conditions or events lead up to this final common pathway.

The puzzle of SIDS is far from solved and the solution has been too long neglected. A first step is the collection of epidemiological data to provide clues for clinical research. For this reason the Department believes that SIDS is a definite entity with a common pathological mechanism and should be officially so named.

1. When unexpected death occurs in infancy for which *definite* and *unequivocal* pathological findings sufficient to account for the death of the infant are missing, the diagnosis of SIDS should be made.

2. In most cases, in addition to the history there are specific and recognizable pathological findings which although in themselves are not sufficient to result in death aid in assigning the case to SIDS.

3. When applicable, the diagnosis SIDS should be placed on the death certificate as the cause of death and uniformly coded.

These steps should be a major contribution in more clearly understanding this disease so that any possible preventive measures can be taken.

INCLUSION BLENORRHEA IN THE NEWBORN

There is one venereal disease that isn't usually considered in the newborn and that's inclusion blenorrhea. The virus that causes inclusion blenorrhea is an interesting agent. It sits in the cervix of the mother; it seems to be transmitted by a venereal route. The baby acquires the infection during the birth process. Then after an incubation period of five to 10 days, sometimes up to two weeks, he begins to develop rather runny eyes (usually on one side, spreading to the other) and then a profuse and purulent material. It's a relatively harmless disease except for the fact that the baby will have a purulent conjunctivitis for a period of perhaps several months unless it is treated. The treatment is tetracycline ointment, applied for a period of about 10 days. It's a rather slow response, but the condition does respond to tetracycline. . . .

Inclusion blenorrhea is a very easy disease to diagnose. You do some scraping from the lower lid conjunctiva and then stain the material collected. You can see the inclusion bodies in the conjunctival epithelial cells. This is a venereal disease, fortunately a relatively harmless one.

—HEINZ F. EICHENWALD, M.D., Dallas

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