COT DEATHS

'What then, in human terms, is this syndrome? . . . The mother, now recovered from the trauma of birth, and the father now established in a more reasonable routine . . . are really beginning to enjoy their offspring—who in turn is beginning to enjoy them. They play with and feed him, bath and dress him, put him to bed and wake up with him . . . Then one morning they go to get him up and find that he is dead.'

J. R. Wedgwood, 1972

COT deaths have a public as well as a private significance: they are a professional as well as a personal tragedy. They are at once the most common cause of death in infancy outside the neonatal period, yet the least understood; the most necessary, yet the most difficult, to forestall; and perhaps the most testing of all childhood deaths for both parents and physician.

Cot deaths have been defined as "the sudden death of any infant which is unexpected by history, and in which a thorough post-mortem examination fails to demonstrate an explicit cause of death". On this definition their incidence in Britain and the U.S.A. is variously quoted as 1·4 (Carpenter, 1972), 2·3 (Wedgwood, 1972), and 1·2 (Harris, 1972) per thousand births.

The causal agents of such deaths must be sought at a succession of levels. Epidemiologically, there is evidence of association with the hours of darkness; winter months; social factors of overcrowding, illegitimacy, poverty and ethnic group; with a higher incidence in the prematurely born, bottle fed, male child with a recent history of upper respiratory infection. These provide the back cloth that increases the possibility of cot death.

Perhaps a more important guide to predisposing causes, however, is the marked association with age—few cot deaths occur under one month or over six months old, and the peak incidence is sharply defined between one and three months. This has suggested the possible importance of both anatomical and physiological factors.

A few children at this age are known to be obligate nose breathers—yet the nasal passages are narrow and easily obstructed by infection. The glottis is small and, radiologically the airway, in the face down position, is extremely narrow. Reduction in environmental temperature increases the oxygen requirements of the infant disproportionately to that of older children—yet evidence suggests that the infant does not maintain hyperventilation with hypoxia in a cool environment (Cross, 1972). There is evidence also of cardiovascular and respiratory instability at this age; and minute stimuli have been shown to produce dramatic cardio-pulmonary responses (Lipton, 1965).

Immunologically, the infant at this age is unstable—with the disappearance of maternal antibodies and the gradual development of the child's own immune responses. The second to fifth months are characterized by a physiological hypoglobulinaemia. Thus, while vital studies of cot deaths have produced conflicting conclusions, infection may be an important contributor. A further possible factor as Porter has suggested, is that some cot deaths may occur in infants made vulnerable to an adverse environment by (subclinical) inborn errors of metabolism.

Such factors, separately or in combination, constitute the predisposing causes which put the infant at high risk. In every cot death, however, there remains the difficulty of identifying the trigger mechanisms which finally made the infant's condition irreversible.

The hallmark of cot deaths is that they are sudden, unexpected and unexplained. The label is a diagnosis by exclusion. By definition 'cot death' is a confession of failure—both its mysteriousness and its incidence being a measure of our professional inability to perceive what is going on under our eyes. In this the general practitioner, the paediatrician, and the pathologist are primarily involved. While cot deaths currently constitute around 15 per cent of total mortality in this age group, Emery (1972) has pointed out that the proportion of *unexplained* sudden deaths is highly dependent on the skill of the paediatric pathologist. (A point which is painfully clear for example to any doctor who had been concerned with infant mortality in tropical countries). It is also conceivable that a proportion of cot deaths are the direct result of hypernatraemic dehydration, and other conditions, unobserved or unrecognised by the physician—for hypertonic dehydration is easily missed by the unwary (Hutchinson, 1972). Invaluable as are the epidemiologist's and physiologist's contribution, little reduction in this mortality will be achieved until these areas of service are improved.

In cot deaths the responsibility of the general practitioner lies in three spheres: the first, availability; the second, clinical perceptiveness; the third, counselling.

Cot deaths call into question our whole practice of child care, and the attitudes that mould it. Many of the children involved have had minor—if not major—recent symptoms; yet the doctor had not been called. Emery (1972), from the experience of about 25 years, has the impression that "there is now a diminished willingness for parents of a young child to call out a practitioner after surgery hours as they know that they are almost certainly not going to get their own practitioner and they would rather wait than be visited by a stranger". What does this mean in terms of practice organisation?

The second responsibility is that of clinical perceptiveness. The general practitioner is inevitably consulted about much childhood illness that is self-limiting. In the midst of this he must not fail to recognise that which is potentially disastrous. He is not helped to achieve this by the scant time traditionally available to him for paediatric education, both before and after graduation. What does this mean in terms of preparation for general practice?

The third area of the general practitioner's task is in counselling. Unless he is able to recognise, understand, and relieve the profound psychological and social concomitants of such deaths, he is inadequate in this situation. Such elements run through much of his work—and are highlighted in the tragedy of a cot death. What are the implications of all this for general-practitioner attitudes and skills? (*See correspondence and book review.*)

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