

Calves Provide Clues To Human 'Crib Deaths'

Newborn calves can provide important clues to the etiology of "crib deaths" in humans, a National Institutes of Health investigator suggests.

Striking similarities exist between sudden, unexpected death in infants and newborn calves, according to Robert C. Reisinger, DVM. Investigations of calves would provide "a directly applicable model"—something so-called sudden unexpected infant death (SUID) studies now lack.

Similarities Found

In both calves and infants, death may come unexpectedly with minimal or absolutely no respiratory distress, diarrhea, or other signs. Lesions which might be correlated with cause of death cannot be found.

Sudden death, of course, also occurs in other animals, but it has been studied extensively in calves. The classic work was done by Theobald Smith, MD, pioneer American bacteriologist, more than three decades ago.

Spread of *Escherichia Coli* to the

absorptive sections of the upper intestinal tract is most often related to calf diarrhea, said Dr. Reisinger. It also has been found in SUID among calves.

In a past bacteriologic study of sections from intestines of calves with and without scours (diarrhea), the NIH investigator, then at the University of Wisconsin, confirmed this impression. Healthy animals showed few organisms in the 10 to 40 feet adjoining the abomasum (the digesting chamber of the cow's stomach). Scouring calves had high numbers of organisms in these absorptive anterior portions of the gut.

Does such a situation cause some human SUID's. The possibility at least deserves investigation, Dr. Reisinger told a recent seminar at Bethesda. Quantitative bacterial determinations for various ~~code forms~~ *E. coli* at various levels of the intestine should be done, he stressed.

Often the process of preparing a slide for pathological examination washes away all evidence of bacterial invasion in the infants. Intravenous challenge with *E. coli* endotoxin: filtrates produces lesions

in calves similar to those sometimes described for the SUID syndrome, such as minimal edema and hemorrhage. Pathognomonic tissue changes cannot be demonstrated, however.

Immunological Capacity

The calf has practically no antibodies and little ability to make its own immediately. It therefore has become a recognized necessity to feed the newborn animal its mother's antibody-rich mammary secretions (colostrum) after birth. Colostrum contains up to 15 to 20 times as much gamma globulin as maternal serum.

The human neonate, like the calf, has an undeveloped immunological capacity at birth, noted Dr. Reisinger. In fact, the newborn calf is more mature in many ways at the moment of birth than a far better-protected mammal, the human.

Dr. Reisinger was recently appointed deputy scientific chairman of the special virus leukemia program at the National Cancer Institute of NIH.