Editorial Views

A Pediatrician's Perspective

TIMELY INDEED is a symposium on pediatric anesthesia in recognition of the rapidity of changes in concepts of care of newborn infants, of special needs of special patients, and of new challenges brought into view by advances in technology. Consider the complexities added to the anesthetist's role by hypothermia to permit cardiac standstill during repair of major malformations, prolonged repairs of major facial malformations, closure of a ductus arteriosus in an 800-gram infant, renal transplants in children with hemoglobins of 5 grams in whom transfusion could contribute to sensitization and graft rejection. Although operations on children with genetically determined disorders such as cystic fibrosis, dysautonomia and myotonia are not new, as insights into pathogenesis and management of these and other metabolic derangements occur, the anesthetist's approach will change. As Brown *et al.* point out, it is useful to know of the possibility of biliary cirrhosis in some patients with cystic fibrosis, and probably lifesaving to appreciate the abnormalities of swallowing and weak cough in myotonic patients.

Those of us who work in children's hospitals often take for granted a child-centered approach to medical care. An occasional interaction with a service that is not child-centered serves to reinforce our convictions that our small patients deserve special attention. For example, the chest film that is a total-baby film imposes unnecessary radiation hazards; the psychic trauma that is inflicted by those inept in wooing young patients' cooperation can lead to unnecessary frustration, restraints, and even pain. Perhaps of even greater significance is the need to appreciate the age-dependent responses to drug metabolism, nutritional needs, and environmental stresses. Thus, temperature regulation is a simpler matter for an adult than it is for an infant, largely because of size and its effect on the surface-to-volume ratio. Even such an obvious matter as the metabolic cost of withholding liquid and calories can be overlooked. Nothing by mouth for four hours in an infant is the equivalent of a fast of at least 12 hours in the adult, since the infant's metabolism per kg is two to three times that of the adult. Less-than-basal caloric intake for several days is not unusual in sick infants, yet such starvation demands catabolism and must contribute to morbidity. The advice of Bennett in his article on fluid balance is excellent. The simple rule that infants require 5 g glucose/kg/day and about 100 ml H_2O/kg/day makes it apparent that 5 per cent glucose in maintenance fluids is after all very useful. If an infant is dependent on intravenous support and unable to tolerate anything by mouth for more than a few days, intravenous alimentation with amino-acid mixtures, vitamins, and lipids is additionally necessary. Although central venous lines have been advocated in some instances, increasingly, experience with alimentation by peripheral veins seems promising, and doubtless this approach to the care of the surgical patient will be topical in forthcoming symposia.

One of the great opportunities available to the anesthetist is to learn more of the age-dependent responses to drugs. It is a reflection on the lack of sufficient studies to note that Mirkin's scholarly review presents more data from studies of animals than from studies of man. The increasing availability of microanalysis of drug levels should permit a quantitative approach to finding the optimal doses of drugs currently in use, as well as those newly introduced for use in man.

Where will pediatric surgery be done in the future? Ours is a society encouraging the return to the generalist, or family physician, who may or may not undertake the herniorrhaphy or minor surgery. Those who encourage regionalization of services surely will consider triage of infants with major surgical

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problems to be cared for at specialized centers. Probably the presence of a skilled pediatric anesthetist will be important in the decision as to which procedures should be accomplished in the smaller community hospital and which in the referral centers. Central to the decision of where a procedure should be undertaken must be its urgency, the availability of good transport, and the competence of the medical team. Surely the anesthetist should contribute to the definition of what can be done in what setting.

A pediatrician's dream of the ideal world would be to have individuals knowledgeable about the special needs of infants and children assembled wherever children are to be treated. It would behoove general anesthetists to read this volume if they are to be responsible for children. One would hope they would work to overcome some of the existing deficiencies cited by Robert Smith in his review of the last 25 years; they would work to achieve optimal infant transport as defined by Hackel; they would perceive the emotional needs of the child in the operating room as so vividly described by Barbara Korsch.

The definition of areas of uncertainty, as well as the mastery of what is known, are the continuing obligation of the physician. This symposium provides an authoritative summary of current areas of interest.

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