Primary Closure of Omphalocele/Gastrochisis in Newborns

To the Editor.—We read with interest and concern the article "Hemodynamic effect of primary closure of omphalocele/gastrochisis in human newborns." The study hypothesized that development of increased intragastric pressure (IGP) during primary surgical repair would be associated with postoperative organ system failure in infants with ventral wall defects, and sought to determine other physiological parameters that might provide objective, predictive criteria for safe primary closure. Yaster’s finding of a critical IGP of 20 cm water confirms the earlier report of Wesley et al. that IGP should not exceed 20 cm of water with or without a silastic silo in repair of omphalocele/gastrochisis. Wesley also established experimentally in a series of five puppies that cardiac output and mean blood pressure were compromised most notably between IGP of 22 and 28 cm of water. He found IGP to be an objective and reliable parameter, as opposed to the previous practice of observation of color, respiratory rate, and lower-extremity skin turgor.

The current report does not differentiate between omphalocele and gastrochisis. Recent literature, especially as regards in utero assessment of ventral wall defects, indicates that while the bowel in omphalocele is normal, that in gastrochisis is often edematous and inflamed. If the bowel in gastrochisis is not forced into the abdomen, nor into a tight silastic chimney under pressure, the edema subsides in 24 to 48 h, allowing replacement into the abdominal cavity with ease and safety. Of the other physiologic parameters which Yaster et al. measured, only CVP and cardiac index (CI) also predicted which infants could be safely closed primarily. Both CI and CVP are more difficult to measure, require invasive technology, and proved to be no more accurate than simple measurement of IGP in predicting safety of closure.

In this series, 50% of infants in whom the abdomen was closed primarily required re-exploration for oliguria, anuria, and/or compromised cardiac output postoperatively. In light of the established safety of silastic pouch technique and previous reported series, this morbidity should be considered excessive. Since this was neither a blinded nor random study, we question the wisdom of continuing the experimental protocol after the first unsuccessful forced primary closure, and certainly after the second.

In the interests of expanding knowledge for the eventual betterment of medical practice and patient care, research on human subjects must continue, but we must remain constantly vigilant that individual patient welfare not be jeopardized.

Linda M. Sacks, M.D.
Assistant Clinical Professor of Pediatrics,
Medical College of Georgia
Associate Director, Nursery, Memorial
Medical Center, Savannah, Georgia

Robert D. Gongaware, M.D.
Associate Clinical Professor of Surgery,
Medical College of Georgia
Departments of Neonatology and Surgery,
Memorial Medical Center,
Provident Professional Building
4750 Waters Avenue, Suite 206
Savannah, Georgia 31404

REFERENCES


(Accepted for publication April 11, 1989.)
intragastric and/or central venous pressure could successfully predict safe primary closure. We have recently completed this study (in 11 patients) that it could.

Although we suspected from the study of Wesley et al. that intragastric pressure measurement could serve as a guide in determining whether to close an infant’s defect primarily, there were also data to suggest that this might not work. Several laboratory studies have shown that increasing intra-abdominal pressure above 20 mmHg may seriously compromise cardiac output and organ blood flow. In these same studies, however, there was no correlation between intra-abdominal and intragastric pressure. Furthermore, Wesley made his measurements through a gastrostomy tube connected to a water manometer. He used 20 cm of water as his therapeutic cutoff, which is less than our finding of 20 mmHg measured through a fluid-filled nasogastric tube.

We agree with Drs. Sacks and Gongaware that human research demands that an individual patient’s welfare not be jeopardized for “study purposes.” In our study, the decision to close an infant’s abdominal wall defect was a clinical decision made by our surgeons. Once it became clear from our data that intraoperative measurements could help separate those children who successfully underwent primary closure from those who failed, we immediately stopped our study and set up a treatment algorithm to test our hypothesis.

MYRON YASTER, M.D.
Assistant Professor
Anesthesiology and Critical Care Medicine
Johns Hopkins University
600 North Wolfe Street
Baltimore, Maryland 21205

Anesthesiology
71:317, 1989

CORRESPONDENCE

REFERENCES


(Accepted for publication April 17, 1989.)

Standards for Oxygen Analyzers

To the Editor—At a meeting of ASTM Committee F-29.03.08 held March 22, 1989, on the harmonization of the international standard on oxygen analyzers for breathing mixtures and the relevant United States standard, it was unanimously decided to recommend withdrawal of the United States standard forthwith. This United States standard was written by F-29’s predecessor committee, American National Standards Institute (ANSI) Z79.9.

The international standard should be followed until a new United States standard that is in concordance with the new edition of IEC 601–1 and ISO 7767 is published by ASTM, probably in 1990. Any queries about this supercede should be addressed to Ms. Beth K. Moran, Staff Manager, ASTM Committee F-29 on Anesthetic and Respiratory Equipment, 1916 Race Street, Philadelphia, PA 19103–1187.

JOHN HEDLEY-WHYTE, M.D.
Chairman, Committee F-29 on Anesthetic and Respiratory Equipment,
and of the U. S. Technical Advisory Group to International Organization for

Standardization Technical Committee 121
on Anesthetic and Respiratory Equipment,
Veterans Administration Medical Center,
1400 V.F.W. Parkway,
Boston, Massachusetts 02132–4927

REFERENCES


(Accepted for publication April 17, 1989.)