Anesthesiology
59:77, 1983

Neonatal Sepsis and Anesthesia

To the Editor:—The report by Hinkle[1] of neonatal sepsis presenting as delayed emergence from general anesthesia was most interesing. The diagnosis and treatment of "early-onset" Group B Streptococcal sepsis requires a high index of suspicion, because the manifestations are very subtle and often the infant presents with respiratory problems that may be confused with respiratory distress syndrome (RDS).[2] The only study done that would lead one to think of sepsis as a cause was the band:total neutrophil ratio. Philip and Hewitt[3] reported a band:total neutrophil ratio of 0.2 or greater correlated with neonatal sepsis. The band:total neutrophil ratio was 0.3 in the patient reported by Hinkle. Ingram *et al.*[4] reported a 4% incidence of Group B Streptococcal sepsis in newborns with a negative gastric aspirate. Thus, the negative aspirate in Hinkle's report does not exclude preexisting disease.

Although the discussion of the impact of anesthesia on the immune system is provided and certainly this could have had an effect, the possibility exists that the infant would have developed the full-blown picture of "early onset" Group B Streptococcal sepsis, regardless of the surgery and anesthesia. We do not wish to negate the importance of this report, because it does give us a real consideration when we are faced with an infant who does not respond as expected to the operation or anesthesia. We only wish to stress the importance of a high index of suspicion when dealing with infants who are at risk of early-onset Group B Streptococcal sepsis.

JAMES MAYHEW, M.D.
BRUCE TAYLOR, M.D.
Department of Anesthesiology
University of Texas Health Science Center
Houston, Texas

REFERENCES

1. Hinkle AJ: Neonatal sepsis presenting as delayed emergence from general anesthesia. ANESTHESIOLOGY 57:412–414, 1982
2. Modanlou HD, Bosu SA, Weller MH: Early onset Beta Streptococcus, neonatal septicemia and respiratory distress syndrome: Characteristic features of assisted ventilation in the first 24 hours of life. Crit Care Med 8:716–720, 1980
3. Phillip AGS, Hewitt JR: Early diagnosis of neonatal sepsis. Pediatrics 65:1036–1041, 1980
4. Ingram AL, Pendergrass EL, Bromberger PI, Thullen JD, Yoder CD, Collier AH: Group B Streptococcal disease. Am J Dis Child 134:754–758, 1980

(Accepted for publication December 28, 1982.)

Anesthesiology
59:77, 1983

A Possible Source of Error in Gas Exchange Measurements

To the Editor:—We read with interest the article by Damask *et al.*[1] on the validation of gas exchange measurements in two commercially available systems. In the Siemens-Elema system, they observed that measured $\dot{V}_{CO_2}$ overestimated actual $\dot{V}_{CO_2}$, the percentage error increasing with decreasing tidal volume. They suggested that this might result from flow transducer error at low volumes, but we have not been able to demonstrate any alinearity of the expiratory flow meter function in the Siemens-Elema Servo 900B® ventilator.[2] On the other hand, however, a commonly overlooked source of error is rebreathing in the Y piece of the ventilator tubing, equivalent to about 24 ml of end-tidal gas. This rebreathing will have its greatest effects proportionately at small tidal volumes, which is in agreement with the findings of Damask *et al.* The use of one-way valves in the limbs of the Y piece possibly may minimize rebreathing.

ROGER FLETCHER, M.D., F.F.A.R.C.S.
LARS NORDSTRÖM, M.D.
OLOF WERNER, M.D.
Department of Anaesthesiology
BJÖRN JONSON, M.D.
Department of Clinical Physiology
University Hospital
S-221 85 Lund Sweden

REFERENCES

1. Damask MC, Weissman C, Askanazi J, Hyman AI, Rosenbaum SH, Kinney JM: A systematic method for validation of gas exchange measurements. ANESTHESIOLOGY 57:213–218, 1982
2. Fletcher R, Werner O, Nordström L, Jonson B: Sources of error and corrections in measurement of carbon dioxide elimination with the Siemens-Elema CO_2 Analyzer 930. Br J Anaesth

(Accepted for publication December 28, 1982.)