

Anesthesiology  
67:146, 1987

*In Reply:*—The name *human immunodeficiency virus* (HIV) was coined by a subcommittee of the International Committee on the Taxonomy of Viruses to resolve the confusion caused by the existence of multiple names for genetic variants of the same virus.<sup>1</sup> This proposal has been widely accepted, and HIV is currently the most common term used to describe the causative agent of AIDS. This was not the case when we wrote and submitted our review, and we appreciate Dr. Freedman's clarification of this point.

Anesthesiology  
67:146–147, 1987

STEVE E. KUNKEL, M.D.  
MARK A. WARNER, M.D.  
Department of Anesthesiology  
Mayo Clinic  
Rochester, Minnesota 55905

#### REFERENCE

1. Coffin J, Haase A, Levy JA, Montagnier L, Oroszlan S, Teich N, Temin H, Toyoshima K, Varmus H, Vogt P, Weiss R: Human immunodeficiency viruses (letter). *Science* 232:697, 1986

(Accepted for publication March 18, 1987.)

### Central Venous Pressure Monitoring during Cesarean Section

*To the Editor:*—The letter by Drs. Robinson and Albin<sup>1</sup> addresses the appropriate management of patients undergoing cesarean section with regard to the possibility of venous air embolism (VAE). Their letter pertains to the report by Younker *et al.*<sup>2</sup> of a case of massive VAE during cesarean section in a patient suffering from massive hemorrhage. I have no disagreement with Younker *et al.* that: 1) VAE can occur during cesarean section (perhaps as frequently as 40%),<sup>3</sup> and 2) rarely, VAE can be life-threatening. However, the suggestion by Drs. Robinson and Albin "that preoperative placement of a multi-orifaced air aspiration catheter is indicated in those cases where significant risk of VAE can be identified" raises a few questions:

1. Which patients do they consider at risk for VAE? Are they referring to *all* patients undergoing regional anesthesia for cesarean section?
2. Is the time delay required to insert the CVP catheter worth the potential benefit from air aspiration?
3. If using electrocardiographic localization of the CVP catheter, where would they suggest is the optimal location for placement of this catheter?

My concerns regarding questions 1 and 2 revolve around the issue that many cesarean sections are done on an emergency basis. Placement of a central venous catheter requires 5–15 min to complete.<sup>4</sup> I am concerned that this delay in appropriate operative intervention will result in an overall greater morbidity and mortality to both mother and baby.

The value of central venous catheters as treatment for VAE remains controversial. The most lucid discussion of this controversy was in an editorial by Michenfelder.<sup>5</sup> My conclusions from his discussion are: yes, central venous catheters can occasionally be lifesaving in VAE, and more important than placement of a cen-

tral venous catheter is the detection of VAE and rapid maneuvers to halt the entrainment of air.

Before we all embark on routine central venous catheter placement for cesarean section, we should consider where we are going to place these catheters (question 3). The elegant work by Bunegin and Albin<sup>6</sup> was in a silastic model of the heart tilted so the right atrial chamber would mimic the position of the atrium in a patient in the sitting position. The results may be applicable to patients in the sitting position. However, patients undergoing cesarean section are either supine or in the Trendelenburg position. To my knowledge, there are no data to indicate the "appropriate positioning" for optimal air aspiration of any atrial or central venous catheter for patients in these positions.

In summary, I would agree with both Younker *et al.*<sup>1</sup> and Drs. Robinson and Albin<sup>2</sup> that monitoring to detect VAE in these patients may be appropriate. The placement of the precordial Doppler is inexpensive, fast, and sensitive. However, I would recommend that precautions for this event during cesarean section stop short of routine placement of central venous catheters. Placement of the CVP delays delivery of the baby, remains untested as a tool for air aspiration in patients in the supine or Trendelenburg position, and gives clinicians a false sense of security regarding their ability to manage massive VAE. To me, detection and rapid maneuvers to halt the entrainment of air are far more important and practical in the management of this dreaded complication.

STEPHEN M. RUPP, M.D.  
Staff Anesthesiologist  
Virginia Mason Clinic  
1100 Ninth Avenue  
Seattle, Washington 98111