

attached to an anesthesia ventilator. A plastic 22-mm outer diameter (OD) ring‡ is a perfect adaptor for that purpose.

The system described has the following advantages. 1) It is light weight, avoiding unnecessary drag on the endotracheal tube. 2) There is no increase in dead space over the standard T-piece system. 3) There is a secure attachment of a sensor probe along the fresh gas tube near the patient's airway. 4) Construction of components are available readily in any anesthesia department. 5) While water condensation will continue to occur, the wide-bore tubing used greatly will reduce the risk of blockage, and it definitely cuts down the bubbling noise, making it much easier to monitor breathing and heart sounds by auscultation.

There are two cautions that should be noted. One is that water collected in a loop of the FGF limb still can be inadvertently drained into the endotracheal tube. However, placement of the humidifier below the operating room table level and elimination of loops pro-

vide continuous drainage back into the humidifier reservoir. (When the FGF tube is of small bore, the velocity of the fresh gas tends to prevent drainage back to the reservoir). Another problem that must be kept in mind is that although dead space is not increased by using large-diameter hoses, the compression volume of the breathing circuit increases, and appropriate adjustments in ventilation must be made.

RAAFAT S. HANNALLAH, M.D.  
*Associate Professor*

WILLIS A. MCGILL, M.D.  
*Associate Professor*

*Department of Anesthesiology  
Children's Hospital National Medical Center  
Washington, D.C. 20010*

#### REFERENCE

1. Rees GJ, Gray TC: Paediatric Anaesthesia: Trends in Current Practice. Boston, Butterworths, 1981, pp 86-87

*(Accepted for publication January 17, 1983.)*

‡ Bird® adaptor part #999 1233.

### In Defense of the Use of *d*-Tubocurarine prior to Succinylcholine in Obstetrics

*To The Editor:*—We are accepting Crawford's<sup>1</sup> challenge to "present a reasonable and compelling case" for the continuance of precurarization before administration of succinylcholine in obstetric anesthetic practice. "Postoperative muscle pain" has not been the reason for precurarization in pregnant women whose increased body water content serves to reduce muscle tension. There are, however, two other indications. First, as demonstrated by integrated electromyography,<sup>2</sup> succinylcholine-induced fasciculations increase intragastric pressure in a linear manner. Increased intragastric pressure, in turn, tends to increase the risk of regurgitation of gastric contents in the gravid woman whose stomach has shifted from a vertical to a horizontal position, whose intragastric pressure already is elevated, whose gastroesophageal junction tonus is decreased, and who often has developed a hiatus hernia.<sup>3-5</sup> Second, fasciculations are muscle contractions and, as such, utilize oxygen. In pregnant women, with their increased metabolism and reduced oxygen storage capacity, the arterial oxygen tension significantly falls more rapidly during apnea than in comparable nonpregnant women.<sup>6</sup> Prevention of succinylcholine-induced fasciculations before endotracheal intubation avoids this increased consumption of oxygen just before the period of apnea, thereby providing a greater margin of safety for mother and baby.

GERTIE F. MARX, M.D.  
*Professor of Anesthesiology  
Albert Einstein College of Medicine  
Bronx, New York 10461*

GERARD M. BASSELL, M.B., B.S.  
*Associate Professor of Anesthesiology  
Assistant Professor of Obstetrics and Gynecology  
University of California, Irvine  
Orange, California 92668*

#### REFERENCES

1. Crawford JS: A challenge to the use of *d*-tubocurarine prior to succinylcholine in obstetrics. *ANESTHESIOLOGY* 57:549, 1982
2. Muravchick S, Burkett L, Gold MI: Succinylcholine-induced fasciculations and intragastric pressure during induction of anesthesia. *ANESTHESIOLOGY* 55:180-183, 1981
3. Williams NH: Variable significance of heartburn. *Am J Obstet Gynecol* 42:814-819, 1941
4. Spence AA, Moir DD, Finlay WEI: Observations on intragastric pressure. *Anaesthesia* 22:249-256, 1967
5. Lind JF, Smith AM, McIver DK, et al: Heartburn in pregnancy—a manometric study. *Can Med Assoc J* 98:571-574, 1968
6. Archer GW Jr, Marx GF: Arterial oxygen tensions during apnoea in parturient women. *Br J Anaesth* 46:358-360, 1974

*(Accepted for publication January 17, 1983.)*