Continuous Infusion Oral Lorazepam for Patients in the ICU

To the Editor:

An important aspect of caring for the critically ill patient is the provision of adequate sedation, limiting myocardial oxygen demand, work of breathing, and anxiety.1 Several drugs have been used in the ICU to provide sedation. Factors such as onset of action, amnestic properties, duration of action, lipid solubility, metabolic pathways, and hemodynamic effects of the drug determine its usefulness in the ICU. Single-dose studies and studies in non-ICU patients suggest that lorazepam has several advantages over other agents.2-4 The primary advantage is lack of active metabolites and, therefore, a relatively predictable duration of action. Continuous infusion administration methods decrease demands on nursing time, provide sustained anxiety relief, and decrease hemodynamic effects. Additionally, it is imperative to provide constant anxiety control if a patient is being treated with neuromuscular blocking agents.

Unfortunately, provision of continuous sedation with intravenous (IV) lorazepam is a costly venture. Costs for continuous infusion lorazepam are several thousand dollars per month in our 13 bed general medical ICU. In addition, as a result of the instability of the agent, continuous infusion lorazepam usually monopolizes an IV access site.

As a result of these problems, we designed a method of administering oral lorazepam solution through a nasogastric tube.5-6 Lorazepam Intensol is a 90 percent bioavailable, 2 mg/ml dye--, alcohol-, and sugar-free solution.7 A 60-ml syringe (Becton-Dickinson, Rutherford, New Jersey) was filled with 10 to 40 ml oral Lorazepam Intensol solution (Roxane Laboratories, Columbus, Ohio) and was attached to Bard Tamper Resistant Patient Controlled Analgesia (PCA) tubing (CR Bard, North Reading, Mass). The syringe was placed into a Bard PCA pump (CR Bard, North Reading) and the patient's lorazepam basal infusion rate set. The PCA tubing was attached to one part of an enteral Y-extension set (Corpak, Wheeling, Ill). This, in turn, was attached to a Salem Sump Tube (Sherwood Medical, St. Louis, Mo). The other two sites were used for nasogastric feedings and intermittent medical administration. Attached to the syringe and tubing were color coded labels with the warning, “For oral administration, only.” Food coloring was added to the oral lorazepam solution to discourage inadvertent IV administration.

Currently, oral lorazepam has been administered to four stable patients in our ICU. We have only tried oral lorazepam solution in hemodynamically stable patients tolerating enteral feedings and medications. A one-to-one conversion from IV to oral lorazepam solution was made, resulting in adequate sedation. This method of delivery should reduce the number of IV sites needed, potential for IV related infection, and cost (oral lorazepam $0.46 per mg, IV $3.20 per mg).

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REFERENCES

Critical Illness in Pregnancy

To the Editor:

I read with interest the article entitled “Critical Illness in Pregnancy” by Nancy A. Collop and Steven A. Sahn, which was published in the May, 1990, issue of Chest.1 I agree with them that the pregnant patient with medical complications represents a unique challenge to the intensive care specialist. In their review of patients who were pregnant and admitted to the medical ICU (MICU), in almost 3 years of time, there were only 20 obstetric patients. Our facility is smaller, but our per capita admission rate to the MICU for obstetric patients is about equal. At a previous facility, Truman Medical Center, East, I was the intensivist. Our numbers were strikingly similar when adjusted for deliveries. My impression on reading the article was the strikingly high rate of pulmonary artery and arterial catheters placed when compared with their general MICU patients. I was struck by this fact, and then I wondered whether this was possibly a result of the fact that in most cases, a pulmonary artery (Swan-Ganz) catheter is not placed by an obstetrician or a maternal/fetal medicine expert but, more than likely, by an intensivist, pulmonologist, or cardiologist. It could be a confluence of two uncomfortable situations for the practicing physicians. One would be a critically ill obstetric patient, which, by and large, does not occur with frequency in the obstetric population, therefore, not frequently presenting to the obstetrician. The second would be a critically ill patient who happened to be pregnant, presenting to the intensivist who infrequently sees pregnant patients. Could it be that the higher rate of Swan-Ganz catheterization in Collop and Sahn's1' population was a result of this confluence of uncomfortable situations of these practicing physicians?

It is of interest that a recent article in The Journal of the American Medical Association by Naylor et al2 called for an integrated strategy for guideline development and research promotion on the pulmonary artery catheterization. No mention is