CLINICAL CONCEPTS AND COMMENTARY

Richard B. Weiskopf, M.D., Editor

The following correspondence refers to a previously published Clinical Concepts and Commentary article by Rosen (Rosen MA: Management of anesthesia for the pregnant surgical patient. ANESTHESIOLOGY 1999; 91:1159-63).

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Carbon Dioxide for Obstetric Pneumoperitoneum

To the Editor:—Dr. Rosen[1] provides a comprehensive review of anesthesia for the pregnant surgical patient, including some recommendations for the increasingly frequent procedure of laparoscopy during pregnancy. One of his recommendations is the use of nitrous oxide in place of carbon dioxide for establishing pneumoperitoneum.

This is a major departure from current clinical practice and deserves better supporting evidence than any provided in Dr. Rosen's review. His sole reference regarding obstetric laparoscopy is a study of the Swedish Health Registry from 1973-1993,[2] which compares complications of laparotomy with complications of laparoscopy. That article does not describe details of laparoscopic technique. However, one of the same authors[3] published a 1997 survey of 16,329 laparoscopic surgeons that reported details of 413 laparoscopic cases during pregnancy, and 100% of those cases used carbon dioxide for pneumoperitoneum.

During pregnancy, special care should be taken to keep the intraabdominal pressure low (less than 15 mmHg) and maintain maternal normocapnia. Using these precautions, for several important reasons, including noncombustibility and easy, rapid elimination, carbon dioxide is the gas of choice for creating pneumoperitoneum.

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In Reply:—I appreciate the thoughtful comments expressed by Drs. Pennington and Stein about the Clinical Concepts and Commentary article concerning management of surgery for the pregnant patient. Because of imposed limitations on the number of references, the only referenced article about laparoscopy and pregnancy was from the Swedish Health Registry;[1] however, mention was made in my article about "several case reports of success in the late second and early third trimesters" using laparoscopic techniques. Not mentioned were case reports of problems with the technique, including trocar injuries resulting from the limited operative space and respiratory acidosis resulting from carbon dioxide insufflation.[2] Currently, techniques of gasless laparoscopy during pregnancy are being used at some institutions.[3]

The precautions recommended were not from the Swedish Health Registry data, which did not address the use of low intraabdominal pressure, the use of pneumatic stockings, or the choice of gas for creating pneumoperitoneum. The precautions represented suggestions from case reports in the literature. I agree that carbon dioxide has become the gas of choice in creating pneumoperitoneum and has the benefit of noncombustibility. Nitrous oxide can be a useful alternative to avoid the respiratory acidosis reported with use of carbon dioxide. I use carbon dioxide when electrocautery is employed, with attention to end-tidal carbon dioxide (ET_{CO_2}) and arterial carbon dioxide tension (Pa_{CO_2}), maintaining the normally reduced values during pregnancy, to avoid acidosis.

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