

Higher IPIP Safe in Laparoscopy of Healthy Obese

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CHICAGO — Higher intraperitoneal insufflation pressures at trocar entry appear to safely establish appropriate pneumoperitoneum in otherwise healthy obese women undergoing laparoscopic surgery, Dr. Basim Abu-Rafea said at the annual meeting of the AAGL (formerly the American Association of Gynecologic Laparoscopists).

Dr. Abu-Rafea and his colleagues at the University of Western Ontario, London, Canada, concluded that setting the intraperitoneal insufflation pressure (IPIP) at 25-30 mm Hg prior to primary trocar insertion eliminates the need to monitor CO₂ insufflated volume, ensures adequate pneumoperitoneum, and does not appear to be associated with increased hemodynamic risk.

The incidence of adverse events during laparoscopic surgery has been observed

to be higher with obesity and increased parity. Research has suggested that IPIPs of 20-30 mm Hg are adequate to lift the abdominal wall. But there are concerns about causing respiratory or cardiovascular suppression or collapse secondary to the high pressures, especially in obese patients.

Dr. Abu-Rafea and his associates conducted a prospective observational cohort study of 100 healthy women who consecutively underwent laparoscopic

surgery, primarily for chronic pelvic pain (66) or infertility (23).

The women ranged in age from 19 to 58 years and in weight from 43 kg to 118 kg with body mass indexes of 17-39 kg/m². Average parity was 1.1, with a range of 0-5.

All were categorized as having American Society of Anesthesiologists (ASA) physical status I or II.

All were given muscle relaxants and general anesthesia, and were in the supine position for the procedures. Pneumoperitoneum was established using a Veress needle.

Heart rate, CO₂ volume, blood pressure, and pulmonary compliance were serially recorded at various IPIPs.

After the primary trocar was introduced and access without injury was confirmed laparoscopically, the IPIP was immediately reduced to the standard



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DR. ABU-RAFEA

operating pressure of 15 mm Hg before the patient was put into a Trendelenburg's position.

At 10 mm Hg, 15 mm Hg, 20 mm Hg, 25 mm Hg, and 30 mm Hg, the means of insufflated CO₂ volumes were calculated at 1.7 L, 3.1 L, 4.0 L, 4.4 L, and 4.7 L, respectively.

In a multivariate analysis, the insufflated CO₂ volume correlated positively with the patients' weight ($R = 0.378, P < .0001$) and positively with parity ($R = -0.508, P < .0001$).

Setting the IPIP at 25-30 mm Hg prior to primary trocar insertion would ensure adequate pneumoperitoneum, eliminating the need to monitor CO₂ insufflated volume and avoiding concerns related to body habitus and parity status, he said.

In a previous analysis of the data, the higher entry pressures caused minor hemodynamic alterations but did not adversely affect cardiopulmonary function (*J. Minim. Invasive Gynecol.* 2005;12:475-79).

When taken together, the findings could change current practice, which is to insufflate to a pressure of 15 mm Hg or to a volume of 3-4 L of CO₂ prior to primary trocar insertion.

"We have clearly demonstrated that the healthy ASA I-II patient, even if obese, can tolerate high entry pressures until the primary trocar is introduced, and then the pressure is immediately reduced to the standard operating pressure of 15 mm Hg," Dr. Abu-Rafea said in an interview.

In addition, he anticipates that the use of high entry pressures will reduce entry-related injuries resulting from inadequate pneumoperitoneal insufflation. More than half of laparoscopic surgery complications are entry-related and possibly attributable to inadequate pneumoperitoneum prior to trocar insertion, he said. ■



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1. Cuzick J, et al. Management of women who test positive for high-risk types of human papillomavirus: the HART study. *LANCET* 2003;362:1871-1876.
2. Lorincz A, Richart R. Human Papillomavirus DNA testing as an adjunct to cytology in cervical screening programs. *Arch Pathol Lab Med* 2003;127:959-968.

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