

References

1. Montgomery CJ, McCormack JP, Reichert CC, Marsland CP: Plasma concentrations after high-dose ($45 \text{ mg} \cdot \text{kg}^{-1}$) rectal acetaminophen in children. *Can J Anaesth* 1995; 42:982-6
2. Dange SV, Shah KU, Deshpande AS, Shrotri DS: Bioavailability of acetaminophen after rectal administration. *Indian Pediatr* 1987; 24:331-2

3. Birmingham PK, Tobin MJ, Henthorn TK, Fisher DM, Berkelhamer MC, Smith FA, Fanta KB, Coté CJ: Twenty-four-hour pharmacokinetics of rectal acetaminophen in children: An old drug with new recommendations. *ANESTHESIOLOGY* 1997; 87:244-52
4. Anderson BJ, Woolard GA, Holford NH: Pharmacokinetics of rectal paracetamol after major surgery in children. *Paediatr Anaesth* 1995; 5:237-42

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Endoscopic Saphenous Vein Harvesting and ETCO_2 in Cardiac Surgery Patients

To the Editor:—Harvest of the greater saphenous vein is a commonly performed procedure in patients undergoing coronary artery bypass grafting (CABG). Minimally invasive video-assisted removal of the saphenous vein in these patients is believed to be associated with decreased complications and greater patient satisfaction than with traditional harvesting techniques.¹⁻³

A new endoscopic vein harvesting system (Guidant Corporation, Menlo Park, CA) uses carbon dioxide (CO_2) to aid in the visualization and dissection of the saphenous vein along its linear course. CO_2 is insufflated at 12-15 mmHg/min, and 10-20 l of CO_2 may be insufflated during this 45- to 60-min procedure.

Increases in minute ventilation required to maintain preinsufflation arterial carbon dioxide tension (PaCO_2) during laparoscopic cholecystectomy have been reported.⁴⁻⁶ We have observed a 10-20% increase in the baseline end tidal carbon dioxide (ETCO_2) levels, as measured by capnography, in patients undergoing endoscopic saphenous vein harvesting with CO_2 insufflation. However, early in the learning curve, greater total amounts of CO_2 are insufflated because of increased time needed to master the dissection process. Hence, we have observed even greater increases in ETCO_2 .

At our institution, concomitant with saphenous vein dissection, the Internal Mammary Artery (IMA) is being exposed by the cardiac surgeon. We routinely decrease the patient's tidal volume (TV) during this time to assist the surgeon in his or her visualization of the IMA. Increases in the ETCO_2 from this decrease in TV compounded by the increase in ETCO_2 resulting from the endoscopic saphenous vein harvest may lead to notable changes in ETCO_2 and alterations in hemodynamics. If video-assisted endoscopic saphenous vein harvest becomes routine in CABG surgery, precautionary measures (such as increases in respiratory rate) should be anticipated.

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References

1. Allen KB, Shaar CJ: Endoscopic saphenous vein harvesting. *Ann Thor Surg* 1997; 64(1):265-6
2. Cusimano RJ, Dale L, Butnay JW: Minimally invasive surgery for the removal of the greater saphenous vein. *Can J Surg* 1996; 39:386-8
3. Lumsden AB, Eaves FF 3rd, Ofenloch JC, Jordan WD: Subcutaneous, video-assisted saphenous vein harvest: A report of the first 30 cases. *Cardiovasc Surg* 1996; 4(6):771-6
4. Baraka A, Jabbour S, Aouad M, Najjar F, Khoury G, Sibai A: Can pulse oximetry and end-tidal capnography reflect arterial oxygenation and carbon dioxide elimination during laparoscopic cholecystectomy? *Surg Laparosc Endosc* 1994; 4(5):353-6
5. Baraka A, Jabbour S, Aouad M, Najjar F, Khoury G, Sibai A: End-tidal carbon dioxide tension during laparoscopic cholecystectomy. Correlation with baseline value prior to CO_2 insufflation. *Anaesthesia* 1994; 49(4):304-6
6. Wahba RW, Mamazza J: Ventilatory requirements during laparoscopic cholecystectomy. *Can J Anaesth* 1993; 40(3):206-10

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