Correspondence

Does fentanyl-induced cough justify pre-treatment with iv lidocaine 2 mg·kg^{-1}

To the Editor:
We read with great interest the study by Lin *et al.*[1] suggesting that *iv* lidocaine with 2 mg·kg^{-1} or ephedrine 5 mg suppress fentanyl-induced cough. We appreciate the brief review on the hypotheses explaining the mechanism of fentanyl-induced cough, as very little is known on this frequent adverse event. However, daily clinical routine also shows that the slow *iv* administration of fentanyl prevents fentanyl-induced coughing and, therefore, clinicians try to prolong administration, as recommended also by Lin *et al.* Unfortunately no data confirm that prolonged administration has fewer side effects. Therefore, we wonder whether we should rely on clinical experience and administer fentanyl slowly or add yet another drug during induction of anesthesia.

We would have concerns to administer, for example, lidocaine 150 mg *iv* to otherwise healthy ASA status I and II patients just to suppress a side effect elicited by the rapid administration of fentanyl. Intravenous lidocaine 2 mg·kg^{-1} is more than the recommended dose (1–1.5 mg·kg^{-1}) for resuscitation of ventricular fibrillation. As an antiarrhythmic drug it may have some arrhythmogenic effects and its vasodilatory effects could even augment the cardiovascular depression seen after most induction agents. However, the pre-administration of ephedrine 5 mg *iv* seems to be a promising idea, as induction of general anesthesia often goes along with a relevant drop in blood pressure and pre-administration of such a small dose of ephedrine could be an acceptable alternative in clinical practice.

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Reference

1 *Lin CS, Sun WZ, Chan WH, Lin CJ, Yeh HM, Mok MS.* Intravenous lidocaine and ephedrine, but not propofol, suppress fentanyl-induced cough. Can J Anesth 2004; 51: 654–9.

Variation of "pulse amplitude" measured by a pulse oximeter may help predict intravascular volume

To the Editor:
We non-invasively investigated the relationship between waveform variation determined by pulse oximetry and the diameter of the inferior vena cava (IVC) determined by ultrasound imaging, the diameter of the IVC directly reflecting intravascular volume.[1]

Twenty ASA physical status I or II adult patients who required general anesthesia were enrolled in this study. After tracheal intubation, anesthesia was maintained with 1% sevoflurane and nitrous oxide (1 L·min^{-1})/oxygen (1 L·min^{-1}). Ventilation was controlled with a ventilatory rate of 10 min^{-1} (durations of inspiratory and expiratory periods were two and four seconds, respectively) with an inspiratory pressure of +15 cm H_2O. Under stable anesthesia but before surgery, "pulse amplitude (PA)" and diameter of the IVC were measured by a pulse oximeter (NELLCOR N-595™; Tyco Healthcare, Pleasanton, CA, USA) attached on the left second finger tip and by a simple-minded ultrasound imaging system M2430A (OptiGo™; Philips, Eindhoven, the Netherlands), respectively. PA was measured automatically as a relative PA (alternating current component) to a background light absorption (direct current component); thus, PA is defined as (max - min)·1/2 (max + min)$^{-1}$ × 100 (max and min = maximal and minimal light absorption intensities). This variable was recorded automatically at two-second intervals in a personal computer with SatCollector version 2.2 software (NELLCOR). The diameter of the IVC was measured longitudinally with an OptiGo™ probe (2.5 MHz sector transducer) from a window below the xiphoid process by an independent expert. Maximal and minimal values of the IVC diameter were recorded over the mechanical positive-pressure respiratory cycle.[2]

The relationship between the respiratory-dependent variations of the PA and IVC diameter is shown in the Figure. Mean (± SD) percent variations of PA and IVC diameter were 10.7% ± 4.8% and 7.4% ± 3.3%, respectively. There was a significant linear correlation between these variables ($r = 0.82$, $n = 20$, $P < 0.01$). Rescue ephedrine was administered in patients with a higher variation (indicated by an asterisk; 15.8%

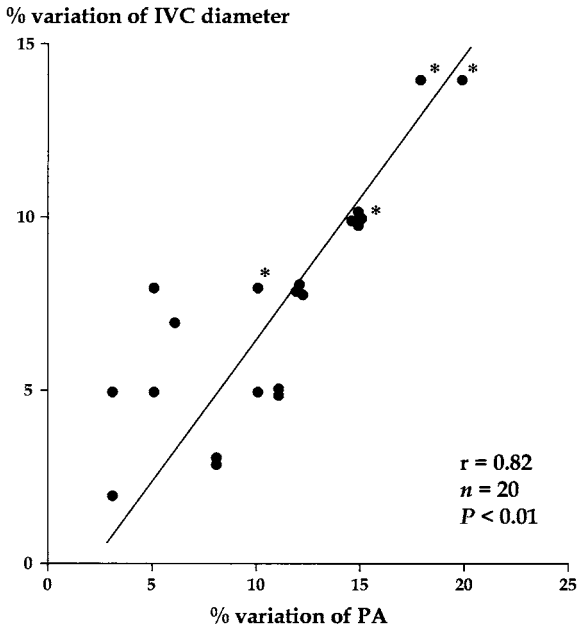

FIGURE Relationship between the respiratory-dependent variations of pulse amplitude (PA) and inferior vena cava (IVC) diameter. Rescue ephedrine was administered in patients with a higher variation (indicated by an asterisk; $n = 4$).

± 4.3% for PA and 9.4% ± 5.5% for the IVC diameter, $n = 4$) compared to patients with a lesser variation (11.5% ± 3.0% for PA and 6.3% ± 3.3% for the IVC diameter, $n = 16$). The results of our preliminary study suggest that the respiratory-dependent variation of PA measured by a pulse oximeter may be a reliable and early predictor of hypovolemia.[3]

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Anesthesiology: the misunderstood occupation!

To the Editor:
Previous studies done across the globe reveal that patients have numerous misconceptions regarding the anesthesiologist's role.[1–4] The purpose of this study was to assess Canadian patients' knowledge of the role of anesthesiologists, anesthesia and their concerns regarding general anesthesia.

After approval from the Institutional Research Ethics Board, patients waiting for preadmission anesthesia consultation were asked to participate in a survey at a tertiary hospital. Eight-nine patients were asked to participate, 86 agreed. Thirty-nine percent had obtained postsecondary education, 69% had ≥ two anesthetics and 69% were ≥ age 55. Eighty percent recognized anesthesiologists as physicians (Table) compared to 65% in Britain[1] and 67% in Spain.[2] However, despite the increased recognition of anesthesiologists as physicians, the majority (38%) described the primary role of anesthesiologists as assistants to surgeons, 36% as physicians and 22% as technical experts. In Japan, more than half of participating patients believed that the only responsibilities anesthesiologists had were to put patients to sleep and provide pain relief.[3]

Approximately one third stated that the anesthesiologist was the main person in charge of resuscitating a patient in the operating room while one third chose cardiologists. Only 11% knew anesthesiologists made decisions for blood transfusions. Only 4% indicated a preference for their attending anesthesiologist. More than half recognized *iv* injection as the technique used to induce unconsciousness and many incorrectly perceived *iv* injection as the primary technique to maintain unconsciousness. Twenty to 30% were concerned about awakening in the middle of the procedure, prolonged awakening time, negative reactions to drugs and overdoses.

When asked who or what would be responsible in the event that a patient did not wake up after the surgery, one third associated this complication with the anesthesiologist despite the lack of understanding of his/her role. Drugs and surgeons were also thought to be responsible.

More patients who obtained postsecondary education correctly identified the anesthesiologist' s role and responsibilities (Table A, available as Additional Material at www.cja-jca.org). More patients < age 55 had concerns regarding awakening in the middle of the procedure (41% *vs* 20%, $P = 0.04$) and negative reactions to