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In retrospect, arterial puncture with the Raulerson syringe was not recognized because of the inability to detect pulsatile flow through it. The color of aspirated blood is not always a reliable indicator of venous access.<sup>3</sup> We recommend that upon entry of the blood vessel, a pressure waveform should be transduced before proceeding further. This can be done with the Arrow pressure transduction probe, which is used with the Raulerson syringe. The probe is attached to a pressure transduction system, flushed, and then inserted into the back of the Raulerson syringe plunger upon entry into the blood vessel. Once the waveform is observed to confirm venous location, the probe is removed, and the spring wire guide is inserted.

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Anesthesiology  
74:634, 1991

## Standard Dose of Conduction Anesthetic Is Excessive for the Patient with Uremia

*To the Editor:*—Lucas and Tsueda<sup>1</sup> describe cardiovascular depression following brachial plexus block in which 45 and 40 ml of local anesthetic were used. For this clinical challenge, a preferred strategy would be to use the *minimum* volume (and dosage) of local anesthetic, such as 20 ml, which suffices to completely block the brachial plexus *via* the parascalene approach.<sup>2</sup>

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Anesthesiology  
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*In Reply:*—We concur with Dr. Gould that the standard dosage of local anesthetics used for regional block may be excessive in uremic patients. The use of minimum effective dosages may be particularly pertinent in diabetic patients in the late stages of the disease complicated by renal failure.

LINDA F. LUCAS, M.D.  
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Anesthesiology  
74:634–635, 1991

## Reversal of Blood Flow in the Internal Jugular Vein

*To the Editor:*—We recently encountered unusual retrograde flow in the left internal jugular vein (IJV) in a patient who underwent accidental ligation of the left innominate vein during open heart surgery.

A 46-yr-old, 163-cm, 68-kg man was scheduled for coronary artery bypass grafting surgery (CABG) because of frequent attacks of angina pectoris. Following cannulation of the left basilic vein the left radial artery, anesthesia was induced with 50 µg/kg fentanyl, 8 mg pancuronium, and oxygen. An 8-Fr Swan-Ganz<sup>®</sup> catheter (Edward) was inserted into the right IJV under ultrasonic guidance.<sup>1</sup> Both trinitrogly-

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cerin and diltiazem were administered at a rate of 1.0 µg · min<sup>-1</sup> · kg<sup>-1</sup> throughout the operation. After sternotomy, the left innominate vein was unintentionally injured by surgical manipulation. The vein was ligated because the bleeding exceeded 1,000 ml and surgical anastomosis was considered too difficult. Blood was transfused through the right atrial port of the pulmonary artery catheter, and CABG was successfully performed.

Two days after surgery the right IJV was examined with a duplex ultrasound to determine if catheter-induced venous thrombosis had

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