

act differently. All these findings seem to indicate that our original hypothesis that N_2O interacts at the mu opioid receptor is in fact correct.

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Oxygen- and Suction-equipped Laryngoscope Blade

To the Editor:—The use of oxygen supplementation laryngoscope blades need not be limited to pediatric patients.¹ Adult sizes, so equipped, are also available from Anesthesia Medical Specialities.*

With the channel extended closer to the tip of the laryngoscope blade, we have discovered another remarkably useful adaptation. By connecting a vacuum source to the channel, instead of oxygen, suction can be provided precisely where it can best aid visibility. The right hand thereby is freed for manipulation and intubation. (A small hole cut in the plastic tube as suction is

connected to the channel provides good thumb control of the suction.)

Thus equipped, it has been much easier to intubate bleeding postoperative tonsillectomy patients, patients with copious secretions, or retching patients.

Both quickness and accuracy are enhanced.

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Ventricular Fibrillation during Thermodilution Cardiac Output Determination

To the Editor:—Transient cardiac dysrhythmias are often associated with the introduction of pulmonary artery catheters.¹ The literature also mentions ventricular fibrillation upon insertion of the catheter,² and bradycardia and atrial fibrillation^{3,4} upon injection of ice-cold fluid for thermodilution cardiac output determination. We recently observed an incidence of ventricular fibrillation upon injection of room temperature saline solution

through a pulmonary artery catheter for cardiac output determination.

A 52-year-old, 85-kg man was scheduled for coronary artery bypass grafting. He had a history of coronary artery disease that first became manifest with an inferior wall myocardial infarction in 1980. He had a negative history for congestive heart failure or dysrhythmias. Cardiac catheterization revealed that the left anterior

descending and right coronary arteries were 80–90% occluded. Prior to the induction of general anesthesia, a 7-French Gould heparin bonded balloon-tipped catheter was inserted percutaneously into the right internal jugular vein and easily floated into the pulmonary artery. The initial cardiac output was $8.1 \text{ l} \cdot \text{min}^{-1}$, pulmonary artery pressure was 22/7 mmHg, and pulmonary capillary wedge pressure was 5 mmHg. Anesthesia was maintained with 5,000 μg fentanyl, 20 mg diazepam, 10 mg pancuronium, 20 mg metocurine, while ventilation was controlled with 100% oxygen and intermittent enflurane up to 1%. Surgery was uneventful. Upon arrival in the cardiovascular intensive care unit, the pulmonary artery tracing was noted to be in the permanent wedge configuration. The catheter was pulled back and a chest roentgenogram revealed it to be properly positioned in the right pulmonary artery. The lung fields were clear.

Six hours after surgery a routine determination of cardiac output was attempted; 10 ml normal saline at room temperature (22°C) was injected through the proximal port of the pulmonary artery catheter. Ventricular fibrillation immediately ensued. Three attempts at electrical cardioversion (400 joules) were unsuccessful. The chest was then opened, whereupon the heart assumed a regular sinus rhythm. The chest cavity contained only a few milliliters of blood, and there was no evidence of cardiac tamponade. The coronary artery grafts were noted to be unkinked and in good condition. The sternal incision was closed in the operating room, where the pulmonary artery catheter was removed and found to be free of defects. The patient suffered no further episodes of ectopy during his remaining hospital stay.

One could surmise the accidental injection of epinephrine or other inappropriate substance rather than saline for the cardiac output measurement. However,

these medications never are kept at bedside. The fluid for injection was drawn from a 150-ml bag of normal saline that was kept at the bedside for that particular purpose. The close temporal relationship and the absence of any arrhythmia once the pulmonary artery catheter was withdrawn strongly suggests that the ectopy was caused by a mechanical event: the saline solution being expelled with jet-like force from the proximal port, pushing the catheter against the septal wall.

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A Complication of Multipurpose Pacing Pulmonary Artery Catheterization via the External Jugular Vein Approach

To the Editor:—We observed a patient in whom a multipurpose pacing pulmonary arterial catheter (PAC) was indicated and whose removal was prevented by the partial shearing of a surface metal electrode on the PAC surface.

A 63-year-old woman was scheduled for three-vessel coronary bypass, left carotid endarterectomy, and repair of an abdominal aortic aneurysm. Numerous ECG strips

documented a P-R interval of 0.20–0.22 s, with bradycardias to 40 bpm known to be induced by her cardiac medications. In view of her bradyarrhythmias, a multipurpose pacing pulmonary artery catheter (Edwards Laboratory 93-200-7F) was selected. An 8.5-Fr Arrow Percutaneous Introducer Sheath Kit (#AK-09800) was used for cannulation of the right external jugular vein (EJ) and easily passed its full length. Passing of the PAC