

thesiologist who chooses to safely employ succinylcholine with pretreatment in the neurosurgical patient population is faced with a dilemma, since no studies have evaluated the use of relaxants other than metocurine for pretreatment in a rigorously controlled fashion. However, we would predict, based on our clinical experience with each of the nondepolarizing relaxants as pretreatment agents prior to succinylcholine in the neurosurgical patient population, that 1 ml of any of the currently available nondepolarizing relaxants would serve equally well as protection against succinylcholine-induced intracranial pressure (ICP) increases.

Second, the effect of pancuronium on ICP has been explored in the clinical arena,<sup>2</sup> but not in a carefully controlled fashion, as Dr. Young *et al.* note. For example, patients in the study alluded to<sup>2</sup> received thiopental doses of 450–800 mg and were hyperventilated with 1% enflurane, making the effects of pancuronium itself on ICP rather hard to discern.

To attempt to protect against increased ICP during intubation by using pancuronium for muscle relaxation as opposed to other, newer nondepolarizing agents would be less than ideal. While pancuronium may not adversely affect ICP, its sympathomimetic effects in intubating doses may be undesirable. Atracurium<sup>3,4</sup> or vecuronium<sup>5</sup> have been shown to be without significant effects on ICP, blood pressure, and heart rate in neuro-

surgical patients at risk for ICP increases, and might be preferable alternatives.

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### Separating the Lungs of Dogs without Obstructing the Right Upper Lobe Bronchus

*To the Editor:*—Doctors Muneyuki, Konishi, Yada, and Kinoshita have recently shown that the bronchial orifice of the right upper lobe originates above the level of the tracheal carina in the majority of dogs.<sup>1</sup> This anatomical feature precludes separation of the two canine lungs with any currently commercially available human or canine double-lumen tube without obstructing the right upper lobe. These authors are to be congratulated for recognizing this technical difficulty, designing a special double-lumen tube to eliminate the difficulty, and successfully testing their double-lumen tube. This is an important advance, because I believe that few physicians conducting research in this area are aware that this problem or a solution to it exist.

I recognized this problem in previous open-chested canine experiments and devised an alternative method of separating the two lungs without obstructing the right upper lobe bronchus. A single-lumen tube is placed into the trachea and advanced until the tip of the tube is palpated, from within the chest, to be just into

the left mainstem bronchus (proximal to the left upper lobe). A ligature is placed around the left mainstem bronchus and single-lumen tube, and tightly tied around both structures. A second single-lumen tube is placed high in the trachea and used to ventilate the right lung. The ligature separates the two lungs, eliminates the need for potentially obstructing balloons, eliminates the need for hand-fashioning a special double-lumen tube, and works 100% of the time.

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