

CORRESPONDENCE

First, in humans with cervical spinal cord transection, sympathetic neural transmission is interrupted anatomically and not, as in our study, by injection of local anesthetic into the thoracic epidural space that result in substantial local anesthetic plasma concentrations. In fact, our study shows that intravenous administration of a local anesthetic resulted in a significant attenuation to inhaled acetylcholine, which was not significantly different from that observed after epidural administration, despite bronchial sympatholysis. Thus, the effect of the local anesthetic *per se* seems to play a dominant role and must be considered in the interpretation of the observed effects in our study. Therefore, the findings that, in humans with spinal cord transection, bronchial hyperresponsiveness was present is not unexpected, and we agree that this might be explained on the basis of unopposed parasympathetic airway innervation in this specific patient population.

Second, the extent of direct sympathetic innervation of the bronchial system varies greatly from species to species. In guinea pigs, cats, and dogs, there is a well developed direct sympathetic innervation of the bronchial system, whereas there is only a rare sympathetic innervation of the human airway.¹ Using autoradiographic techniques, an additional sympathetic innervation of the bronchial system in humans has been shown (mainly glands, vessels, and alveolar walls, but not bronchial smooth muscle) and is assumed to have no functional relevance for airway resistance regulation.^{1,2} Finally, Peter J. Barnes (1992) writes in his review about modulation of neurotransmission in airways that, in contrast to guinea pigs, cats, and dogs, there is no adrenergic bronchodilator response to direct nerve stimulation in humans.³ Thus, results obtained from animal models may not represent the regulation of airway resistance in the human bronchial system.

Anesthesiology
82:795, 1995

© 1995 American Society of Anesthesiologists, Inc.
J. B. Lippincott Company, Philadelphia

Femoral Nerve Injury May Be Related to Abdominal Wall Retractor

To the Editor:—I read the recent article by Warner *et al.*¹ with great interest. The Mayo Clinic's early adoption of computerized medical records provides an especially large data base within which to assess the frequency of rare complications, in this case, lower extremity motor neuropathy.

Warner *et al.* identified only four cases of femoral neuropathy, none of which was associated with either common peroneal or sciatic neuropathy. This low incidence is in agreement with the early report by Dhunér² in which all four cases of perioperative lower extremity neuropathy (in 30,000 anesthetics) involved the common peroneal nerve. One potential cause (often present in patients undergoing laparotomy in the lithotomy position) of isolated femoral neuropathy is direct pressure from the metal blade of an abdominal wall retractor. Is it possible that the four patients who suffered femoral nerve injuries had undergone intraabdominal procedures, possibly distinguishing them from patients with injury either to the common peroneal or sciatic nerves?

In summary, we do not believe that the arguments raised by Dipinigitis *et al.* are contradictory to our statement that "blockade of pulmonary sympathetic innervation by thoracic epidural anesthesia seems to be of no relevance for airway resistance in humans."

Harald Groeben, M.D.

Department of Anesthesiology and Critical Care Medicine
Johns Hopkins Medical Institutions
Baltimore, Maryland 21287-7294

Hans-Bernd Hopf, M.D.

Zentrum f. Klin. Anaesthesiologie
Heinrich-Heine Univ. Düsseldorf
Moorenstrasse 5
D-40001 Düsseldorf, Germany

References

1. Goldie RG, Paterson JW, Lulich KM: Adrenoceptors in airway smooth muscle. *Pharmacol Ther* 48:295-322, 1990
2. Carstairs JR, Nimmo AJ, Barnes PJ: Autoradiographic visualization of beta-adrenoceptor subtypes in human lung. *Am Rev Respir Dis* 132:541-547, 1985
3. Barnes PJ: Modulation of neurotransmission in airways. *Physiol Rev* 72:699-729, 1992

(Accepted for publication December 1, 1994.)

John Butterworth, M.D.

Associate Professor
Department of Anesthesia
Bowman Gray School of Medicine
of Wake Forest University
Winston-Salem, North Carolina 27157-1009

References

1. Warner MA, Martin JT, Schroeder DR, Offord KP, Chute CG: Lower-extremity motor neuropathy associated with surgery performed on patients in a lithotomy position. *ANESTHESIOLOGY* 81:6-12, 1994
2. Dhunér K-G: Nerve injuries following operations: A survey of cases occurring during a six-year period. *ANESTHESIOLOGY* 11:289-293, 1950

(Accepted for publication December 5, 1994.)