

CORRESPONDENCE

shine much light through the "cloud" surrounding intrathecal hyperbaric lidocaine. I propose we recognize complications when they occur¹ and formulate reasonable clinical recommendations for the use of spinal lidocaine⁴ in the hope of clearing the cloud. I believe that my case report, when combined with the recommendations made by Dr. Drasner in his accompanying editorial,⁴ "presents the clinical facts dispassionately" and only help to further this goal.

J. C. Gerancher, M.D.
Assistant Professor
Department of Anesthesia
Stanford University Medical Center
Stanford, California

Anesthesiology
1999; 90:319

© 1999 American Society of Anesthesiologists, Inc.
Lippincott Williams & Wilkins

The Use of Magnetic Resonance Imaging in Patients with Fiberoptic Intracranial Pressure Monitors

To the Editor:—We read with interest the conclusions of the authors of a case report published in the October issue of *ANESTHESIOLOGY* (Fiberoptic intracranial pressure monitoring during magnetic resonance imaging. 1997; 87:1001-2). We are writing in response to this report because the use of magnetic resonance imaging (MRI) in patients with fiberoptic intracranial pressure monitors in place has become essential at busy trauma centers.

Although we applaud the creative thinking and reasoning involved in hypothesizing the potential for and testing the movement of a Camino fiberoptic intracranial pressure monitor (Camino Laboratories, San Diego, CA) in the magnetic field of an MRI machine, these authors missed the essential point: movement of the catheter inside the head, regardless of the strength of the magnetic field, is impossible when the catheter is inserted properly. This is because the flexible catheter tip extends only 0.5 mm beyond the rigid cranial bolt when applied according to manufacturer's guidelines. Therefore these *ex vivo* testing results are moot when extrapolated to the *in vivo* situation.

Perhaps the more important point alluded to in this case report relates to thermal effects. We investigated this recently with cadaver models and found negligible temperature changes during typical MR sequences (unpublished data, Prall JA, Lillehei KO, Whittaker JB, January, 1998). Others found similar results in other types of intracranial implants.^{1,2} The only other potential for radiofrequency absorption causing detrimental effects may lie in epileptogenesis. However, in 10 years of submitting patients with Camino monitors to MRI, we have yet

References

1. Gerancher JC: Cauda equina syndrome following a single spinal administration of 5% hyperbaric lidocaine through a 25-gauge Whitacre needle. *ANESTHESIOLOGY* 1997; 87:687-9
2. Ferguson FR, Watkins KH: Paralysis of the bladder and associated neurologic sequelae of spinal anaesthesia (cauda equina syndrome) *Br J Surg* 1937; 25:735-52
3. De Jong: Last round for a "heavyweight?" *Anesth Analg* 1994; 78:3-4
4. Drasner K: Lidocaine spinal anesthesia: A vanishing therapeutic index? *ANESTHESIOLOGY* 1997; 87:469-72

(Accepted for publication March 20, 1998.)

to document a seizure during or immediately after the scan. Prospective confirmation of this observation remains to be performed.

As far as we have been able to determine, there is no documented reason why this type of monitor represents any additional risk to a patient undergoing MRI for traumatic brain and spinal cord injuries. We continue to feel safe in submitting any patient with a fiberoptic intracranial pressure monitor to MRI where indicated.

J. Adair Prall, M.D.
A. Stewart Levy, M.D.
John S. Nichols, M.D., Ph.D.
Intermountain Neurosurgery and Neuroscience
Denver, Colorado

References

1. Pohost GM, Blackwell GG, Shellock FG: Safety of patients with medical devices during application of magnetic resonance methods. *Ann NY Acad Sci* 1992; 649:302-12
2. Chou CK, McDougall JA, Chan KW: Absence of radiofrequency heating from auditory implants during magnetic resonance imaging. *Bioelectromagnetics* 1995; 18:307-16

(Accepted for publication May 11, 1998.)