

## Seeing Eye to Eye on Ophthalmic Regional Anesthesia

To the Editor:

<sup>1</sup>The review article on ophthalmic regional anesthesia by Nouvellon *et al.*<sup>1</sup> was engaging, particularly the cadaver photographs elucidating the spread of local anesthetic agent within the orbit as well as the links to supplemental digital content.

The authors are to be commended for their comprehensive discourse. However, their assertions regarding akinesia, reproducibility, and reblock rates for peribulbar (extraconal) anesthesia require greater clarification. A review of the literature, more current than quoted in their report, suggests the statement “an additional injection is required in as many as 50% of cases” may be misleadingly excessive.<sup>2–4</sup>

The efficacy and low complication rate of extraconal ophthalmic blockade is well documented. In a group of 200 patients, Ghali and Hafez<sup>2</sup> compared 5–7 ml peribulbar anesthesia using a single inferotemporal injection or a combined inferotemporal/superomedial technique. The reinjection rates for these two groups were 7% and 16%, respectively. Clausel *et al.*<sup>3</sup> also evaluated single-shot peribulbar anesthesia for cataract surgery using local anesthetic volumes of 5–6 ml. Ninety of their 101 patients had complete akinesia at 10 min, and surgical conditions were deemed good in all cases. Similarly, Rizzo *et al.*,<sup>4</sup> in a sample of 857 patients, evaluated the efficacy of a single injection of 2% lidocaine adopting a medial percutaneous approach. Akinesia was reportedly attained in 85.6% of patients 2 min after injection. Furthermore, surgical anesthesia was adequate in 100% of cases within 7 min, and no patients required block supplementation. By contrast, Luchetti *et al.*<sup>5</sup> compared the efficacy of ropivacaine 0.75% and bupivacaine 0.5%-mepivacaine 2% in a study sample of 2,000 patients. They achieved satisfactory sensory blockade in all cases but noted a reinjection rate of 30–34% to attain complete eye immobility.

In terms of akinesia and reproducibility, the ultimate efficacy of local anesthetic infiltration into the extraconal space (peribulbar ophthalmic anesthesia) is governed by a number of factors. These include technique style (*e.g.*, intraorbital position of needle tip), composition of local anesthetic solution, use of the spreading agent hyaluronidase, and the nature and duration of the specific ophthalmic surgical procedure.

**Howard D. Palte, M.B., Ch.B., F.F.A.(S.A.)**, University of Miami, Bascom Palmer Eye Institute, Miami, Florida. hpalte@med.miami.edu

Copyright © 2011, the American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins. Anesthesiology 2011; 115:209–17

## References

1. Nouvellon E, Cuvillon P, Ripart J: Regional anesthesia and eye surgery. *ANESTHESIOLOGY* 2010; 113:1236–42
2. Ghali AM, Hafez A: Single-injection percutaneous peribulbar anesthesia with a short needle as an alternative to the double-injection technique for cataract extraction. *Anesth Analg* 2010; 110:245–7
3. Clausel H, Touffet L, Havaux M, Lamard M, Savean J, Cochener B, Arvieux C, Gueret G: Peribulbar anesthesia: Efficacy of a single injection with a limited local anesthetic volume. *J Fr Ophthalmol* 2008; 31:781–5
4. Rizzo L, Marini M, Rosati C, Calamai I, Nesi M, Salvini R, Mazzini C, Campana F, Brizzi E: Peribulbar anesthesia: A percutaneous single injection technique with a small volume of anesthetic. *Anesth Analg* 2005; 100:94–6
5. Luchetti M, Magni G, Marraro G: A prospective randomized double-blinded controlled study of ropivacaine 0.75% versus bupivacaine 0.5%-mepivacaine 2% for peribulbar anesthesia. *Reg Anesth Pain Med* 2000; 26:491–2

(Accepted for publication March 2, 2011.)

## In Reply:

We thank Dr. Palte for his interest in our work and pertinent comments.<sup>1</sup> The references he cites are accurate. Concerning the relatively poor reproducibility of peribulbar anesthesia efficacy, our sentence should have been better formulated, such as: “Depending on the surgeon’s request for akinesia, an additional injection may be required in 0% to as high as 50% of cases.” That might help to understand why we cited only the highest rate available in the literature.<sup>2</sup> We agree that the reblock rate of peribulbar anesthesia may vary dramatically depending on block quality but also on surgeon requests and the actual procedure.

The surgical procedure variability (*i.e.*, phakoemulsification; manual extracapsular cataract extraction, which is still in use in many developing countries; or posterior segment surgery) may explain the surgeon’s request for a more or less efficacious block. Surgeon skill/experience is also a parameter to take into account. Indeed, for phakoemulsification performed by a skillful surgeon in selected patients, topical anesthesia alone (no akinesia), or even no anesthesia at all may be enough.<sup>3</sup>

A second parameter of variability is the numerous variants of peribulbar techniques (including number of injections, site of needle introduction, volume injected, and local anesthetic choice and adjuvants), which renders comparisons difficult.

Moreover, the reblock rate depends on the evaluation of block quality, which frequently is assessed *via* completely subjective methods, such as “deemed by the surgeon” with no other objective measurement. Therefore, reblock rate probably is not the best way to objectively assess block quality and compare various technique evaluations in the literature.