

Marketing Clearance of Diagnostic Ultrasound Systems and Transducers. Silver Spring, MD, U.S. Food and Drug Administration, 2008

3. Palte HD, Gayer S, Arrieta E, Scot Shaw E, Nose I, Lee E, Arheart KL, Dubovy S, Birnbach DJ, Parel JM: Are ultrasound-guided ophthalmic blocks injurious to the eye? A comparative rabbit model study of two ultrasound devices evaluating intraorbital thermal and structural changes. *Anesth Analg* 2012; 115:194–201

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### In Reply:

We thank Drs. Palte and Gayer for their thoughtful response to our recently published article.<sup>1</sup> We appreciate their input and would like to respond to their comments.

Patient's safety in anesthesiology is a critical point and becomes even more important in the context of medical research. We totally agree that ocular sonography can be detrimental by either thermal or mechanical injuries. Palte *et al.*,<sup>2</sup> in an animal study on four rabbits, have clearly demonstrated that significant increase in ocular temperature (more than 1.5°C) may occur in subcutaneous, corneal, cameral, or vitreal areas after 90 s of direct application to the cornea of a Micromaxx® 10 MHz probe (Sonosite, Bothell, WA); the latter been used in our study. They have also shown that this thermal effect is time dependent. In our study, two trained investigators made all measurements, and strict attention was paid to decrease exposure time to ultrasound to less than 60 s. As has recently been highlighted,<sup>3</sup> “minimizing the exposure time is probably the most important factor for ensuring patient safety from thermal injury.” Moreover, in our study, applying the probe on a thick layer of ultrasound gel over the closed upper eyelid could have decreased the heat transfer.

Anesthesiologists who want to train for ocular ultrasonography should, however, be aware of the risk of prolonged exposure to ultrasounds. In the view of current knowledge in the topic, limiting the examination time to less than 90 s seems to be safe. It would be of great interest to develop ocular phantoms modelizing the eye and optic nerve sheath to allow training in ocular ultrasound without unnecessary human exposure to ultrasound. We also strongly encourage manufacturers to develop specific ocular settings or dedicated probes for ocular ultrasonography with low power output and mechanical and thermal indexes less than 1, allowing nonspecialists in ocular sonography to study in full safety the incidence of raised intracranial pressure in pathologies as preeclampsia or others.

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### References

1. Dubost C, Le Gouez A, Jouffroy V, Roger-Christoph S, Benhamou D, Mercier FJ, Geeraerts T: Optic nerve sheath diameter used as ultrasonographic assessment of the incidence of raised intracranial pressure in preeclampsia: A pilot study. *ANESTHESIOLOGY* 2012; 116:1066–71
2. Palte HD, Gayer S, Arrieta E, Scot Shaw E, Nose I, Lee E, Arheart KL, Dubovy S, Birnbach DJ, Parel JM: Are ultrasound-guided ophthalmic blocks injurious to the eye? A comparative rabbit model study of two ultrasound devices evaluating intraorbital thermal and structural changes. *Anesth Analg* 2012; 115:194–201
3. Shankar H, Pagel PS: Potential adverse ultrasound-related biological effects: A critical review. *ANESTHESIOLOGY* 2011; 115:1109–24

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### Updated Pain Guidelines: What Is New?

Recently, the American Society of Anesthesiologists Task Force on Acute Pain Management published an “updated report and practice guidelines for acute pain management in the perioperative setting.”<sup>1</sup> Although this is a laudable effort and the Task Force committee includes anesthesiologists with established expertise in the topic, I must admit as a surgeon with an interest in analgesia and postoperative recovery that I have several concerns on the overall message of the practice guidelines. First, it is claimed that the present guidelines differ from existing guidelines by providing “new evidence in an updated evaluation of scientific literature,” but a closer look at the reference material including almost 250 references shows less than 10 references from 2009 and upward. Many publications on single analgesic interventions as well as multimodal techniques have been published in the last 3 yr, which may change their conclusions if updated. For instance, by several meta-analyses or reviews on interventions like preventive analgesia, paravertebral blocks in pulmonary surgery, epidural analgesia in laparoscopic colonic surgery, local infiltration analgesia *versus* spinal analgesia in hernia surgery, and high-volume infiltration analgesia in major lower-limb arthroplasty *versus* peripheral blockades as well as the many efforts to provide improved analgesia and/or opioid-sparing by a combination of nonopioid analgesics. Importantly, many publications from the PROSPECT Collaboration Group have provided procedure-specific recommendations for perioperative acute pain management—which was not discussed in the present guidelines. This may be clinically important, because it has become evident that choice of analgesia is highly dependent on the specific surgical procedure regarding analgesic efficacy, potential side effects, and effects on recovery.

Neither was there a comment on the extensive Australian and New Zealand guidelines for perioperative pain management.\*†

In summary, updated practice guidelines for acute pain management therefore must be based upon the available procedure-specific, multimodal opioid-sparing techniques and within a context to provide a rational basis for enhanced postoperative recovery and reduction of morbidity.<sup>2</sup>

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## References

1. American Society of Anesthesiologists Task Force on Acute Pain Management: Practice guidelines for acute pain management in the perioperative setting: An updated report by the American Society of Anesthesiologists Task Force on Acute Pain Management. *ANESTHESIOLOGY* 2012; 116:248–73
2. White PF, Kehlet H: Improving postoperative pain management: What are the unresolved issues? *ANESTHESIOLOGY* 2010; 112:220–5

(Accepted for publication September 7, 2012.)

\* Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine: Guidelines on Acute Pain Management. Review PS41, 2007. Available at: <http://www.anzca.edu.au/resources/professional-documents/documents/professional-standards/pdf-files/PS41.pdf>. Accessed August 13, 2012.

† Macintyre PE, Schug SA, Scott DA, Visser EJ, Walker SM: Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. Acute Pain Management: Scientific Evidence. 3rd edition. Melbourne, Australia, ANZCA & FPM, 2010. Available at: <http://www.anzca.edu.au/resources/college-publications/pdfs/Acute%20Pain%20Management/books-and-publications/acutepain.pdf>. Accessed August 13, 2012.

## In Reply:

We appreciate Dr. Kehlet's comments regarding the Practice Guidelines for Acute Pain Management in the Perioperative Setting.<sup>1</sup> When considering whether to conduct a comprehensive revision as opposed to an update, the Task Force determined that it would be more appropriate at this time to conduct an update of the Guidelines. The intention of an update is to examine new evidence from literature, surveys, and other sources as applied to the existing evidence model. Had we obtained substantive new findings as applied to the questions asked in the previous update of the Guidelines, we may well have proceeded with a full revision and had the opportunity to consider some of the very issues raised by Dr. Kehlet.

Regarding the literature search, the American Society of Anesthesiologists endeavors to conduct a comprehensive search when developing all evidence-based practice parameters, with contributions accepted from our methodologists, Task Force members and consultants, as well as from other contributors during the

several months the preapproval draft is posted on the Internet. It is always possible that, even with these contributions, we will miss some relevant citations related to our evidence models.

Our approach is designed to give preference to higher-quality literature relevant to each outcome. Accordingly, for a specified outcome, the findings from randomized controlled trials will be reported in the text of the Guidelines unless these findings are only available from other types of literature (*e.g.*, nonrandomized comparative studies, observational studies, or case reports). Our full literature database indicates that many more studies had been reviewed, but not reported in the text for the update period of 2003 to August 2011, due to our "best available literature" policy. The full citation list is cited in the updated Guidelines as Supplemental Digital Content.† We invite Dr. Kehlet and others to send us citations for the studies he believes are missing and, if they have not already been reviewed, we will add them to the next update of the Guidelines. Another element of our methodology is that we only accept data from original studies; therefore data from secondary sources (*e.g.*, reviews and meta-analyses) are not accepted as evidence. We do review literature cited by other guidelines and/or meta-analyses primarily to assure as complete a coverage of the relevant literature as possible.

We see value in considering the development of procedure-specific guidelines for perioperative pain care. We congratulate Dr. Kehlet and others for their leadership in this area. The scope of the American Society of Anesthesiologists guidelines has to date been global, rather than procedure specific. Going forward a new approach could certainly be considered, based on the strength of the evidence supporting procedure-specific guidelines.

We thank Dr. Kehlet for his thoughtful and informative letter indicating his concerns. During the development of our Guidelines, we were focused on events and practices that can improve efficacy of care and safety to patients. We agree that the Australian–New Zealand guidelines also offer valuable information to clinicians and others interested in acute pain. Although the methodology used by these guidelines differs from that used by American Society of Anesthesiologists, they clearly provide important information to the field. Your letter serves to remind us that new information is continually becoming available and needs to be considered when approaching this very important topic.

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## Reference

1. American Society of Anesthesiologists Task Force on Acute Pain Management: Practice guidelines for acute pain management in the perioperative setting: An updated report by the American Society of Anesthesiologists Task Force on Acute Pain Management. *ANESTHESIOLOGY* 2012; 116:248–73

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† Supplemental Digital Content 1, <http://links.lww.com/ALN/A780>, and Supplemental Digital Content 2, <http://links.lww.com/ALN/A781>. Accessed August 31, 2012.