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Reply to Dr Zhou et al

Accepted for publication: September 2, 2017.

To the Editor:

Zhou et al take issue with our trial that compares the interscalene brachial plexus block with the suprascapular nerve block (SSNB) and conclude that “future studies should examine clinically important outcomes.” We could not agree more and were pleased to see that the authors are near completion of a trial assessing postoperative pain severity (NCT02517437), while we are currently recruiting for a trial to detect impaired ventilation as a result of phrenic nerve blocks (DRKS00011787).

The authors raise 3 points: the validity of our measure of pain control, the fairness of comparing 20 mL ropivacaine (interscalene brachial plexus block) versus 10 mL, and the clinical relevance of the motor block.

Regarding pain (Figure 3 in our article), one can debate whether procedural pain should be included, but considering that this accounts for only 0.3% of the area under the curve, it plays essentially no role in the primary outcome. We certainly agree that more time points for measuring pain would have been preferable, but unfortunately not feasible in our outpatient setting. However, the numerical rating scale values for pain are so similar between the groups at each point in time after the operation that noninferiority is essentially guaranteed, independent of a potential rebound effect. The mean numerical rating scale score between the 4th and 24th hour for the SSNB group would have to be 3.6 instead of 2.0 for noninferiority no longer to hold, a value 3 SEs larger than the interpolated one and so large that it would extend beyond the scale of the figure.

Regarding grip strength, the authors contend that SSNB was favored from the outset because of our choice of anesthetic volumes. There is, of course, some merit to this argument, and in our article, we explained that the choice was based on some of the lowest volumes used at the time. We elaborated on this point in response to another letter to the editor, noting that with increasing experience, volumes can be reduced. Moreover, the duration of the block, not only its initial success, has to be taken into account. In the active trials mentioned previously, we used 10 mL of 1% ropivacaine, and the authors of the letter used 20 mL of 0.5% ropivacaine. As one reduces volumes below, say, 10 mL, the success of the block will depend increasingly on the experience and skill of the anesthesiologist, and the generalizability of publications may have to be scrutinized closely.

The authors finally question the relevance of looking at motor blocks of the hand, given that “most shoulder patients are immobilized in slings for several weeks.” For one thing, more than 25% of the patients we studied were not in fact immobilized (Table 1 in our article). Moreover, ability to use the hand despite immobilization is important for daily routine such as use of mobile phones, drinking, or personal hygiene.

There are certainly a number of clinical issues that still need to be addressed, and we are looking forward to reading up-coming publications from the trials that are underway.

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Three-Dimensional Thoracic Epidural Educational Model

Accepted for publication: June 25, 2017.

To the Editor:

We read with interest the article entitled, “Use of 3-Dimensional Printing to Create Patient-Specific Thoracic Spine Models as Task Trainers,” by Jeganathan et al., introducing the concept of “homemade, low-cost, patient-specific, and high-fidelity ultrasound guidance simulators for resident training in thoracic epidurals using 3-dimensional printing technology.”

The combination of high-resolution computed tomography scan data, computer-aided design, and 3-dimensional (3D) printing has led to a revolution in our ability to imagine and build anatomically based training tools. Over the past 2 years, we have also used 3D printing and other additive manufacturing techniques to develop an educational model for thoracic epidural training. We presented our work at the 42nd Annual Regional Anesthesiology and Acute Pain Medicine meeting of the American Society of Regional Anesthesiology and Pain Medicine (April 6–8, 2017, in San Francisco, California).

Using stereolithography files based on computed tomography scan data (available free online at https://grabcad.com/), we 3D printed a human thoracic spine from levels T7 to T11. We then 3D printed a simple mold to cast a simulated ligamentum flavum from silicone rubber (https://www.smoother-on.com/product-line/oomoo/). We secured the ligament in the spinal canal with a bubble tea straw, attached the model...