Correspondence

Reply from the authors

Editor—We would like to thank Dr Wilson and Drs Kuruba and Singh for their comments on our up–down sequential dosing study comparing ultrasound with nerve stimulation for interscalene block (ISB).1

Dr Wilson comments on the number of block failures in the nerve stimulator group and the appropriateness of including three of these patients in the data analysis. This has been adequately addressed in the discussion of the manuscript; however, the inclusion of these patients would have decreased the power of the study because this actually reduced the calculated MEAV50 in the nerve stimulator group. Our result is likely even more robust than reported. Drs Kuruba and Singh comment on the power of the study; however, our intended sample size was achieved, and indeed, we achieved statistical significance for the primary outcome with this sample.

We originally did not intend to use a sham procedure in this study because we did not expect to achieve such low volumes with either method. However, it is necessary in up–down studies to use a zero dose because many interventions have a fundamental response rate above zero that is sometimes also seen in placebo studies. The fact that four out of five patients had a successful block at 1 ml does suggest that the MEAV50 is somewhat less than 1 ml. As regards the ethics of using a zero dose in this study, all patients had preoperative celecoxib and acetaminophen, intraoperative fentanyl and portal site infiltration and immediate access to postoperative rescue block, i.e., opioids, or both if necessary. It should also be noted that this change to the protocol was fully reviewed by our research ethics board and fully described in the patient consent form. Finally, the criterion for block failure was extremely rigorous (visual analogue scale >0) and so any patient experiencing pain would have immediate access to rescue therapy.

Drs Kuruba and Singh also comment on the confounding aspect of using intraoperative fentanyl and portal site infiltration in both groups. However, there were no differences in the amount of fentanyl received in either group and 10 patients had failed blocks as defined by the protocol in the recovery room. This demonstrated that the use of fentanyl and infiltration did not mask our ability to determine a difference between groups and that the difference was due to the difference in plexus location technique and not other factors.

Kuruba and Singh comment on the experience of the anaesthetists performing the blocks. As stated in the article, both techniques were performed or directly supervised by consultant anaesthetists experienced in both techniques. We were also surprised at the number of attempts required in the nerve stimulator group, but similarly the number of attempts in the ultrasound group was very low despite the blocks being performed by the same group of anaesthetists.

In summary, we maintain that ultrasound reduces the minimum effective local anaesthetic volume required for ISB and that with the use of ultrasound significantly fewer needle passes are required for successful block performance.

Conflict of interest

None declared.

C. J. L. McCartney1*
A. McNaught1
U. Shastri1
M. Columb2
1Toronto, Canada
2Manchester, UK
*E-mail: colin.mccartney@utoronto.ca

doi:10.1093/bja/aer044

Conflict of interest

None declared.

S. M. G. Kuruba*
S. K. Singh
Liverpool, UK
*E-mail: drmurthygk@gmail.com

doi:10.1093/bja/aer044

Conflict of interest

None declared.

C. J. L. McCartney1*
A. McNaught1
U. Shastri1
M. Columb2
1Toronto, Canada
2Manchester, UK
*E-mail: colin.mccartney@utoronto.ca

doi:10.1093/bja/aer044

Conflict of interest

None declared.

S. M. G. Kuruba*
S. K. Singh
Liverpool, UK
*E-mail: drmurthygk@gmail.com

doi:10.1093/bja/aer044

Conflict of interest

None declared.

C. J. L. McCartney1*
A. McNaught1
U. Shastri1
M. Columb2
1Toronto, Canada
2Manchester, UK
*E-mail: colin.mccartney@utoronto.ca

doi:10.1093/bja/aer044

Conflict of interest

None declared.

S. M. G. Kuruba*
S. K. Singh
Liverpool, UK
*E-mail: drmurthygk@gmail.com

doi:10.1093/bja/aer044

Conflict of interest

None declared.

C. J. L. McCartney1*
A. McNaught1
U. Shastri1
M. Columb2
1Toronto, Canada
2Manchester, UK
*E-mail: colin.mccartney@utoronto.ca

doi:10.1093/bja/aer044

Conflict of interest

None declared.
Transtracheal jet ventilation in patients with severe airway compromise and stridor

Editor—We read with interest the article on transtracheal jet ventilation (TTJV) in patients with severe airway compromise by Ross-Anderson and colleagues.¹ We agree with the authors regarding the enormous value of the pause pressure protection offered by automated jet ventilators in the elective setting. Protection from barotrauma is just as important in the emergency obstructed airway. The Ventrain (Dolphys Medical, Eindhoven, The Netherlands) is a new device which offers an alternative approach to the prevention of major pressure-related complications. It was first presented at the Difficult Airway Society meeting in Liverpool in 2008 and is now commercially available from Inspiration Healthcare. It is a single-use TTJV device marketed for use in emergency complete airway obstruction scenarios. It consists of a handheld device with tubing to connect one end to an oxygen supply and the other to a narrow bore transtracheal catheter. It allows not only inspiration but also active expiration and is now commercially available from Inspiration Healthcare. It is a single-use TTJV device marketed for use in emergency complete airway obstruction scenarios. It consists of a handheld device with tubing to connect one end to an oxygen supply and the other to a narrow bore transtracheal catheter. It allows not only inspiration but also active expiration by generating suction using the Venturi effect, thus reducing the risk of barotrauma caused by inadequate expiration.² We would be interested in the thoughts of the authors about the place of this device in emergency and elective airway management.

Conflict of interest
None declared.

Y. Ahmad*
M. W. H. Turner
Portsmouth, UK
*E-mail: yousra@doctors.org.uk

¹ Ross-Anderson DJ, Ferguson C, Patel A. Transtracheal jet ventilation in 50 patients with severe airway compromise and stridor. Br J Anaesth 2011; 106: 140–4
doi:10.1093/bja/aer042

Reply from the authors
Editor—We would like to thank Drs Ahmad and Turner for their interest in our recent article.¹ They mention the use of a Ventrain (Dolphys Medical, Eindhoven, The Netherlands)² and ask our opinion on its use in the light of our experience with transtracheal jet ventilation in severely obstructed airways in the elective setting.

Our experience of the Ventrain device is limited, in that we have had discussions at both the Difficult Airway Society and the Society for Airway Management meetings with Dr Hameakers about its development and use, but have not used it in our own practice. It is an interesting product which certainly warrants further evaluation in both the emergency and elective settings, since it would appear to present an elegant solution to some, but not all, of the causes of barotrauma associated with transtracheal jet ventilation.

Our series focuses on the elective setting, and we emphasize the use of an automated jet ventilator with pause pressure regulation. The emergency situation is associated with a higher risk of barotrauma, and it is a guiding principle that the use of equipment which can rapidly provide a patent airway, and with which the anaesthetist is familiar, is of most use.³ With this in mind, our own preference is to teach the use of a wide-bore transtracheal device (e.g. QuickTrach, VBM Medizintech, Sulz, Germany) with a 15 mm connector, which allows the use of a standard breathing circuit or self-inflating bag. Such a device may provide a faster, more convenient, and more reliable airway solution than the use of an unfamiliar or non-regulated jet ventilator. In the emergency setting of a complete airway obstruction requiring access via the anterior neck, it is vital to remember that the treatment aim is to provide a rapid definitive airway, usually surgically. We recommend that any jet ventilation is with pause pressure regulation and as a temporizing measure only. However, given the relative novelty of the Ventrain device, we would not be keen to dismiss it as an airway solution in the emergency setting out of hand. As experience with the device grows, its role may become clearer and it may be that it will adopt more widespread usage in the future.

Conflict of interest
None declared.

D. J. Ross-Anderson* C. Ferguson A. Patel
London, UK
*E-mail: davinarossanderson@googlemail.com

¹ Ross-Anderson DJ, Ferguson C, Patel A. Transtracheal jet ventilation in 50 patients with severe airway compromise and stridor. Br J Anaesth 2011; 106: 140–4
doi:10.1093/bja/aer047
doi:10.1093/bja/aer047