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 by generating suction using the Venturi effect, thus reducing the risk of barotrauma caused by inadequate exhalation.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.

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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

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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
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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

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