Dobutamine and terlipressin in patients with septic shock

Editor—We read with interest the study by Morelli and colleagues1 describing the simultaneous infusion of dobutamine and terlipressin in patients with septic shock. The criteria chosen in the study to demonstrate adequate fluid resuscitation were a pulmonary artery occlusion pressure (PAOP) of 12–15 mm Hg and a central venous pressure (CVP) of 8–12 mm Hg. Although these are traditional and theoretical markers of intravascular filling, it has been clearly and repeatedly demonstrated that a static CVP or PAOP reading is not an indication of either the adequacy of intravascular volume or of fluid responsiveness.2 This holds true in experimental animal models of hypovolaemic shock, normal volunteers, septic patients, intensive care patients, and cardiac surgery patients. There is increasing evidence that dynamic criteria such as respiratory variations in haemodynamic variables (systolic pressure variation,3 pulse pressure variation,4,5 and stroke volume variation),6,7 the effect of passive leg raising,8 and changes in cardiac index (CI) in response to a fluid challenge9 are far more useful in guiding fluid resuscitation than their static counterparts.

It is likely that at least some of the patients in this trial would have shown evidence of fluid responsiveness had dynamic criteria for this been used. Vasoconstricting patients who are not adequately fluid resuscitated is likely to be detrimental via a reduction in CI and may compromise tissue oxygen delivery. There may have been a smaller reduction in Sv\textsubscript{O2} and CI in the terlipressin groups and less subsequent dobutamine use if a more evidence-based method of fluid resuscitation had been used.

A. Miller*
N. Coleman
Stoke-on-Trent, UK
*E-mail: admin@cmc.myzen.co.uk

Editor—We thank Drs Miller and Coleman for their relevant comment on our recent publication.1 One of the most important endpoints of our study was to evaluate the effects of terlipressin alone or in combination with dobutamine on oxygen delivery and oxygen consumption. Since virtually all patients included in the trial presented with or were at risk of pulmonary arterial hypertension, we decided to perform haemodynamic monitoring with a pulmonary artery catheter. It is well known that cardiac output can also be determined by pulse contour analyses, transpulmonary thermodilution, or echocardiography. In fact, dynamic variables, such as systolic pressure variation, pulse pressure variation, stroke volume variation, and changes in CI in response to a fluid challenge might be more useful in guiding fluid resuscitation than static parameters. However, the current sepsis guidelines suggest fluid therapy should aim to preserve CVP at 8–12 mm Hg, mean pulmonary occlusion pressure between 12 and 15 mm Hg, and an Sv\textsubscript{O2} (if available) of at least 65%. Since we wished to comply with the guidelines, fluid therapy was aimed to achieve these endpoints. It might be argued that some patients with high catecholamine doses benefit from PAOP values >12–15 mm Hg (especially in the presence of myocardial diastolic dysfunction). In this regard, it is important to note that mean PAOP was consistently within the upper limit of this range (between 14 and 16 mm Hg). Moreover, it has to be underlined that the thermodilution technique is still referred to as the gold standard of cardiac output measurement. Since dynamic parameters may be more accurate predictors of volume responsiveness in septic shock patients, they will hopefully be implemented into the next guidelines.

A. Morelli1*
C. Ertmer2
M. Westphal2
1Rome, Italy
2Munster, Germany
*E-mail: andrea.morelli@uniroma1.it

3 Perel A. The physiological basis of arterial pressure variation during positive-pressure ventilation. Reanimation 2005; 14: 162–71
The modified ventilating tube changer to facilitate tracheal intubation using the GlideScope® in patients with a limited mouth opening

Editor—Airway management of patients with limited mouth opening remains one of the major challenges in anaesthesia. The fibreoptic intubation is the technique most commonly chosen in such cases, but requires experience to achieve proficiency and is often affected by secretions or blood. It is reported that the failure rate of emergency fibreoptic intubation may be as high as 13%. Thus, anaesthetists faced with a difficult intubation may require alternative approaches to fibreoptic or direct laryngoscopy. The GlideScope® (GS) (Saturn Biomedical System Inc., Burnaby, BC, Canada) video laryngoscope may provide a better laryngoscopic view than direct laryngoscopy and is potentially useful for tracheal intubation in patients with a difficult airway. However, in a previous study of patients with a difficult airway due to limited mouth opening, we found that even if the GS was inserted into the mouth and the glottis was clearly exposed, introducing the endotracheal tube (ETT) tip into the glottis was difficult due to the wide and square design of GS blade. To solve this problem, we have successfully used the modified ventilating tube changer (MVTC) (Tuoren Medical Instruments Inc., Xinxiang, Henan, China) to facilitate tracheal intubation using the GS in such patients.

The MVTC, which is designed for exchange of ETTs, is a hollow PVC tube with an inner diameter of 3.5 mm and a length of 60 cm (Fig. 1A). Before the use, the removable 15 mm standard adapter of the MVTC is removed and a stiff metal stylet with a diameter of 2 mm and a length of 65 cm is inserted into the MVTC. The distal end of the MVTC with a metal stylet is bent anteriorly to an angle of 60°, which corresponds to the specially designed GS blade of 60° curvature (Fig. 1B). After the local ethics committee approval, 21 patients, aged 18–63 yr, undergoing elective plastic surgery under general anaesthesia requiring the orotracheal intubation were observed. All the patients had moderately limited mouth opening with an interincisor distance of 20.9 (2.1) mm (18–25 mm), which was attributed