A case for routine oesophageal Doppler fluid monitoring during major surgery becoming a standard of care

Editor—Perioperative fluid optimization is an established technique in reducing morbidity after major surgery. Hypovolaemia is associated in particular with increased gut morbidity and increased length of hospital stay.1 Excessive fluid administration produces the clinical picture of pulmonary, peripheral, and gut oedema with associated morbidity and mortality.2 Intraoperative determination of fluid requirement traditionally incorporates clinical evaluation, measurement of heart rate, arterial pressure, and central venous pressure (CVP), which are insensitive to detection of hypovolaemia.3 Fluid requirements necessarily vary according to individual physiology and specific circumstances of surgery. Therefore, fixed or formula-based filling regimes dependent on patient weight or length of operation are inappropriate, may be unable to detect occult hypovolaemia, and take no account of intrinsic cardiac function.

In contrast, a ‘goal directed’ dynamic management approach uses regular fluid boluses and non-invasive stroke volume measurement to monitor their effect on the cardiovascular system, by utilizing the patient’s Starling curve to optimize preload. In a recent randomized-controlled trial of 128 patients undergoing colorectal surgery,4 significant improvements in cardiac output, stroke volume, and oxygen delivery intraoperatively were described using oesophageal Doppler to guide colloid administration. This led to reduced morbidity and hospital stay after operation compared with a CVP-controlled group. Interestingly, despite often large increases in these variables, CVP remained largely unchanged, demonstrating the lack of sensitivity to hypovolaemia of the CVP (Fig. 1). CVP reflects combinations of influences, including cardiac performance, blood volume, and vascular tone, and is affected by the physiological changes associated with pneumoperitoneum and frequent adjustment of the operating table tilt. Not only can CVP be inaccurate in the determination of fluid status, but as with any invasive monitor is associated with cost, complications, and morbidity.

Oesophageal Doppler is increasingly popular for guiding intraoperative fluid therapy. As it displays the output of each cardiac cycle, it allows the reaction to fluid boluses to be assessed. This approach to fluid management identifies and treats hypovolaemia and has been associated with improved outcome in patients having major surgery.

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Dexmedetomidine sedation for the treatment of tetanus in the intensive care unit

Editor—In tetanus, the severe muscle spasms and autonomic instability affect the respiratory and cardiovascular systems, generally requiring treatment in the intensive care unit (ICU).1,2 Treatment is directed at suppressing rigidity, muscle spasms, and sympathetic activation, and controlling autonomic instability. A range of drugs including adrenergic blockers have been used.3–7 Dexmedetomidine is a lipophilic imidazole derivation with high affinity for α2 adrenergic receptors, having analgesic and anti-sympathetic properties.8 Dexmedetomidine, also, reduces plasma levels of catecholamines and maintains haemodynamic stability through its...