cases have been reported to date where the DFI was <0.8 and could be reversed to normal by any therapeutic interventions (Fig. 2).

The next morning, TCD again showed the reversal of flow and a CT scan showed massive cerebral oedema. In consultation with the team and with the family, a decision was made to switch his goals of care to palliation and the patient died later that day.

The measurement of deteriorating cerebral perfusion pressure (CPP) non-invasively is possible with TCD.2 As CPP approaches zero, blood vessels collapse during diastole, followed by absent or reversed diastolic flow.3 A DFI was defined as DFI=1–RIF, where R is the velocity of the diastolic reverse flow and F the velocity of the systolic forward flow.4 A DFI<1 indicates reverse flow.

Intracranial hypertension has been reported in patients with fulminant hepatic failure. With a shorter time interval between the start of symptoms and the onset of encephalopathy, there is a greater risk of cerebral oedema.5

Intermittent haemodialysis may result in an increase in ICP and has been reported to cause dialysis disequilibrium syndrome (DDS) with induced cerebral oedema that resulted in irreversible brain injury and death.6 The use of SLED gives a more gradual and stable clearance of urea. DDS has not been reported with the use of SLED.7

In our patient with fulminant liver failure and signs of raised ICP, the use of SLED showed a marked improvement in cerebral perfusion and reduction of ICP. To our knowledge, this is the first reported case where any therapeutic manoeuvre managed to reverse the DFI back to normal, indicating that SLED may have a role in reducing ICP and promoting cerebral perfusion, especially in patients with severe liver dysfunction.

Conflict of interest

None declared.

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Steep Trendelenburg position, intracranial pressure, and dexamethasone

Editor—I read with interest the article on the effect of steep Trendelenburg position,3 as I am involved in a lot of laparoscopic abdominal work. These procedures can last up to 6 h and involve a steep head-down Trendelenburg and left or right tilt, to the extremes of the table mechanism. I agree with the findings regarding the changes in stroke volume and cardiac function, as measured by oesophageal Doppler, and was extremely pleased to see the results regarding cerebral oxygen saturations. The authors briefly mention changes in intracranial pressure (ICP) but do not elaborate further. It is my impression from many cases of this sort that the ICP does increase and despite relative normocapnia and arterial pressure maintenance, some of these patients suffer an acute confusional state after operation. Since the addition of dexamethasone 8 mg into our postoperative nausea and vomiting regime, this only occurred in the diabetic patients who were not given dexamethasone. Owing to this observation, I now give all my patients dexamethasone and monitor and treat the changes in the blood sugar as appropriate. Further, once the surgeons have finished the laparoscopic part of the surgery and are closing the abdominal wounds, I use a reverse Trendelenburg, as much as surgery allows, until the end of surgery. This appears to prevent any postoperative acute confusion. Have the investigators noticed anything similar and how do they manage these patients and this problem?

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Editor—We thank Dr George for his interest in our article and his interesting comments. We also commonly observe a short-lived period of postoperative confusion after prolonged Trendelenburg positioning. While we do not have personal experience with dexamethasone for this indication, in our clinical practice, we do tend to keep the patients sedated for another 60 min after long procedures. The hypothesis that this confusional state may be caused by cerebral oedema prompted us to perform a follow-up study in which we focused on cerebral perfusion. In this study (currently undergoing peer review), we did not show an influence on cerebral perfusion parameters, but of course this does not exclude a degree of cerebral oedema. Thus, the idea, of using dexamethasone to prevent the
confusional state by attenuating oedema, is interesting and is worthy of further scientific investigation as to its efficacy and safety (e.g. with regard to the possible influence of immuno-suppression on tumour recurrence). While we understand the rationale for head-up positioning at the end of the procedure, we would advise caution with this approach, since sudden reverse Trendelenburg positioning in patients who frequently have relative hypovolaemia and may have cerebral oedema may impair cerebral perfusion.

**Conflict of interest**

None declared.

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**Feasibility of ultrasound imaging of the abdominal wall in elderly obese volunteers**

Editor—we have conducted a preliminary study to examine the ultrasound image quality of the abdominal muscles in a group of elderly obese volunteers.

Institutional review board approval for the investigation was obtained by the Attikon Hospital, University School of Medicine, Athens, Greece. We were planning to recruit 50 volunteers in each group over a period of 1 yr. Written informed consent was obtained from all the volunteers. Volunteers were excluded from the study if they had undergone abdominal surgery, or if there was a known anatomic abnormality of the abdominal wall.

Ultrasound imaging examination of the abdominal wall was performed in 16 elderly obese volunteers [BMI: 37 (35–40), age: 75 (70–83) yr, F:M 11:5] and was compared with that of 14 young non-obese volunteers [BMI: 23 (18–26), age: 35 (28–38) yr, F:M: 9:5]. The abdominal wall was seen at the level of the anterior axillary between the 12th rib and the iliac crest.¹ ² A staff anaesthetist skilled in the use of ultrasound regional anaesthesia techniques performed all the examinations. The ability to clearly distinguish the three abdominal muscle layers was examined with the following grading scale: 1, excellent; 2, difficult; and 3, not possible. The depth of the external oblique muscle from the skin surface and the thickness of the three abdominal layers were also measured and compared between the two groups.

Comparisons between groups were with an unpaired t-test. The level of significance was set at *P*<0.05 (SPSS 10.0).

As our study found a high rate of low-quality imaging in the elderly obese volunteers, the monitoring board decided to discontinue the trial. In the 16 elderly obese volunteers, it was not possible to visualize the three abdominal muscle layers in 14 (Fig. 1A and a) and was graded difficult in the other two (Fig. 1C). In the volunteers with normal BMI, the three abdominal muscles were clearly distinguished in all cases. The depth of the external oblique muscle to the skin surface was 1.8 (0.4) cm in obese patients, being significantly higher (*P*<0.01) to that of normal-weighted volunteers, 0.95 cm.

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*Fig 1 Ultrasound imaging of the abdominal wall in elderly obese patients. (a) Abdominal muscles are seen as one mass. (a) More than three layers are depicted when the abdominal muscles were scanned. (c) Although the three layers were seen, the echotexture, the echogenicity, and the fascia of the abdominal muscles could not be clearly outlined. AM, abdominal muscles; AT, adipose tissue; E, external, I, internal; T, transverse oblique abdominal muscle.*