separate its contribution by using the solutions. The effects of CAE were similar to those of bupivacaine-containing lipid solutions in both models; this suggested that the partitioning effect is the principal mechanism in lipid resuscitation.

Acknowledgements
We thank Y. Kira and Y. Yabunaka (Central Laboratory, Osaka City University Medical School), and Y. Okui and S. Ueno (Department of Central Clinical Laboratory, Osaka City University Hospital) for technical assistance. We also thank A. Asada (Osaka City University) for helpful advice.

Funding
The work was supported in part by a grant-in-aid for scientific research from the Japan Society for the Promotion of Science (24791619), Tokyo, Japan.

Declaration of interest
None declared.

References

doi:10.1093/bja/aev386

An alternative anaesthetic technique on nonagenerians undergoing endovascular aortic surgery and long term outcomes

Torrance, CA, USA
*E-mail: mauricelippmann@hotmail.com

Editor—The population of the USA as a whole is aging. In the year 2000, the population older than 85 reached four million and may exceed seven million by the year 2020. Members of this burgeoning population, particularly nonagenarians, are frequently denied access to endovascular aortic repair (EVAR) in the belief that they are too fragile, or because of concerns about deleterious effects of general anaesthesia. Recent systematic reviews of treatment of abdominal aortic aneurysm (AAA) in patients >80 years of age reported pooled perioperative mortality of 7.5% and five-year survival rate of 60% for open surgery and a perioperative mortality of 4.6% for EVAR. Even when mortality rates are acceptable, however, the impact of treatment on quality of life must also be considered. There has been much discussion of possible deleterious effects of anaesthesia in the elderly, particularly with regard to negative effects on cognition (see, for example, Ghoneim and references therein) which may contribute to the tendency to deny intervention to octo- and nonagenarians with AAA. Our minimal use of anaesthesia during EVAR was designed to avoid such detrimental effects.

The subjects of this study were participants in the prospective, multicenter investigational device exemption (IDE) clinical trial of EVAR using the AneuRx stent graft (Medtronic, Santa Rosa, CA). Details on the methods of this approved IRB trial have been presented. All subjects received the AneuRx stent-graft, an early-generation endoprosthesis with infrarenal fixation. The 13 subjects selected were >90 years of age between November 1998 and January 2007. The monitoring included: EEG, pulse oximetry, capnography, urinary catheter, oxygen mask, blood pressure cuff on the left upper arm, skin temperature probe, and was supplemented with two large-bore i.v. and an arterial line at the right wrist. A minimally invasive anaesthetic technique consisting of monitored anaesthesia care (MAC) with slight sedation and peripheral nerve blocks was as follows. After titrating i.v. fentanyl, the anaesthesiologist performed ilioinguinal and iliohypogastric nerve blocks with 20 ml of 0.25% bupivacaine. While the nerve blocks took effect, the surgeons infiltrated 10 ml of 0.5% plain lidocaine in the groin skin and proceeded with the operation with no waiting period. Use of midazolam was minimized to avoid the potential respiratory depression, confusion, and agitation sometimes observed in elderly patients as a result of synergistic effects with fentanyl. Of the 13 nonagenarian patients in our EVAR database, technical success was achieved in 100%. All patients survived the perioperative period. One patient was lost to follow-up at 22 months. All other patients were followed until death or study termination (mean follow-up 37 months (range, 1–73). A Kaplan-Meier...
Ultrasound standard for popliteal sciatic block: circular expansion of the paraneural sheath with the needle in-plane from lateral-to-medial in the ‘reverse Sim’s position’

J.-A. Lin1,*, Y.-J. Lee2, H.-T. Lu1 and Y.-T. Lin3

1Taipei, Taiwan, 2Hsin-chu, Taiwan, and 3Hualien, Taiwan

*E-mail: juian.lin@tmu.edu.tw

Editor—Not until the common extra-neural sheath was defined as the paraneural sheath1,2 did clinicians confirm sub-paraneural spread as the ultrasound endpoint. Circular expansion of the paraneural sheath to accommodate the local anaesthetic bolus as the indicator of adequate sub-paraneural spread, either around the sciatic nerve at the pre-bifurcation level, or around its divisions at the bifurcation level, achieves complete sensory block with mean times within 20 min3 and makes popliteal sciatic block a more clinically predictable technique than ever. To facilitate a traumatic paraneural penetration at best, finding the groove between the two components at the bifurcation level is suggested,4 because ultrasound differentiation between the paraneural sheath and epineurium at the pre-bifurcation level can be difficult.5 Division of the popliteal sciatic nerve into the tibial nerve (TN) and common peroneal nerve (CPN) can be visible in about 70% of patients, because on occasions different depths and angles of the divisions cause anisotropy and difficulty in capturing both nerves exactly perpendicular in the same image.6 The traceback approach along the TN at the popliteal crease7 and augmenting the popliteal venous flow by squeezing the calf8 allow for easier identification of the TN. With the knee joint extended and the hip joint flexed, the seesaw sign may further bring the divisions out of the background tissues by tensioning the nerve.9 Not only

References


doi:10.1093/bja/aev387

Fig 1 Kaplan-Meier survival curve.

Survival probability

0.00
0.25
0.50
0.75
1.00
0.00
0.25
0.50
0.75
1.00

Months post-surgery

Kaplan-Meier survival curve.