Recent advances in intravenous anaesthesia

Editor—I would like to respond to a section of Professor Sneyd’s review article on ‘Recent advances in intravenous anaesthesia’. Despite an extensive and generally well researched review, I take issue with his comments on the use of propofol in obstetric anaesthesia.

He briefly dismisses propofol as being contraindicated for induction and maintenance of anaesthesia during Caesarean section. The two references cited to support this assertion are >10 yr old and do not represent current evidence and opinion. Propofol has been used more extensively in obstetric anaesthesia in recent years for induction and also maintenance of anaesthesia and evidence supports the benefits. Initial fears of minor changes in subtle neurobehavioural scores have not been found to be a clinical problem.

The statement that ‘propofol is not licenced for use in obstetric anaesthesia’ is a very weak argument to avoid administering it. It is well known that commercial considerations govern the decision of a drug company to apply for a licence for use in obstetrics and following instructions on the product characteristics would lead us to avoid thiopentone in doses >250 mg and also mixing local anaesthesia with opioids.

I am not suggesting that the use of propofol for Caesarean section is universal and a controversies meeting of the Obstetric Anaesthetists Association in March 2003 revealed only 25% support for the motion proposing it as the induction agent of choice. This, however, is a considerable increase from a 1997 survey of the same organization indicating that <2% admitted to having used it for Caesarean section. I conclude that propofol is a safe and efficacious alternative to thiopental and in the future may replace it.

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It may be that propofol is a suitable agent for obstetric use but available data do not support this assertion nor do 75% of obstetric anaesthetists.

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Perioperative analgesia for knee arthroplasty

Editor—I welcome the study by Davies and colleagues comparing epidural infusion with combined single shot femoral and sciatic nerve block for perioperative analgesia after knee arthroplasty. The use of nerve blocks for this procedure is well established in other countries but appears to be used infrequently in the UK. The findings may not come as a surprise to the enthusiast and many of the results in this paper have been demonstrated before.

The Authors suggest the use of a continuous sciatic nerve block, in addition to a continuous femoral block, to improve the quality of analgesia instead of the single shot technique used in this study. Using continuous femoral nerve block, in my experience the addition of a single shot sciatic block with bupivacaine 0.25%, 20 ml is sufficient and thus avoids the problem of prolonged motor blockade and difficult catheter insertion.

McNamee’s study demonstrates a reduction in morphine consumption when an obturator block is added; however, there was no statistically significant difference in the VAS pain scores. I add a separate obturator block postoperatively if the patient complains of
severe pain on the medial aspect of the knee, which fails to respond to a top up of the femoral nerve catheter. Magnetic resonance imaging studies show that the spread of local anesthetic after a femoral nerve block is not proximal but caudal, lateral and slightly medial. This usually reaches the anterior branch of the obturator nerve.

The postoperative nausea and vomiting (PONV) rate was similar between the two groups. The true incidence and possible difference between the two analgesic modalities may have been clouded by the choice of the general anaesthesia (GA) technique and subsequent use of morphine. Apfel and colleagues showed recently in a large randomized controlled trial with 5199 patients a reduction in the likelihood of PONV by about a quarter when comparing a standard inhalational with a total i.v. GA technique (41 vs 29%).

The Authors state that the maximum bupivacaine dose used was 3 mg kg\(^{-1}\), which is 50% above the maximum recommended dose. This dose has been shown in one study with 22 patients not to produce any clinical signs of local anaesthetic toxicity. Plasma levels were not measured. The large volumes of high dose local anaesthetic needed to provide surgical anaesthesia to the lower limb causes unease with some colleagues and may deter many from using this technique. This issue has been raised elsewhere and the safety of this and possibly even higher doses should be clearly demonstrated and data sheets amended.

Lastly, Davies and colleagues close their discussion by rightly pointing out that alternative practices should not confer a disadvantage and ideally offer some additional benefit over the reference technique. Although well established, the reference technique (i.e. epidural analgesia) is not necessarily a logical choice to provide perioperative analgesia for total knee replacement (TKR).

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Editor—We read with interest the recent article by Davies and colleagues on perioperative analgesia for total knee replacement. We entirely agree with their findings that combined femoral and sciatic blocks are a practical alternative to epidural infusion for providing analgesia after TKR. Indeed, we note that it is often necessary to add local infiltration to the femoral block to achieve adequate analgesia. However, this study confirmed that a local anaesthetic block is no more effective than a total intravenous anaesthesia regimen when combined with a femoral catheter and local infiltration to the surgical site. This is reassuring for those who routinely use 3 mg kg\(^{-1}\) in the anterior femoral and sciatic compartment. The authors should be congratulated on their enthusiasm for further research in this area.

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one of the four groups: Group I, GA plus femoral and sciatic block (n=25); Group II, GA plus local infiltration (n=25); Group III, GA plus local infiltration plus top-up on next morning (n=22); and Group IV, spinal anaesthetic plus local infiltration plus top-up next morning (n=17). All patients were prescribed morphine as rescue analgesia and received regular acetaminophen and ibuprofen. Pain scores were collected every 6 h for the first 24 h using a visual analogue scale (VAS, 0–10) and morphine requirements were also noted. Patients in Groups I and IV had significantly less pain (P<0.05) than those in Groups II and III, in the first 6 h after surgery. In general, the pain was less severe in these Groups (I and IV) throughout the first day, however, it did not reach statistical significance. Patients in Groups III and IV (groups with top-up of local anaesthetic next morning) had less pain during the second day and night, however, this did not reach statistical significance.

These findings have important implications in decision-making regarding patient mobilization and early discharge after a UKR and warrant further investigation.

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Editor—Thank you for the opportunity to respond to Dr Kühne’s comments. The authors would agree that a continuous femoral block is more likely to have a positive effect on overall analgesia than a supplementary continuous sciatic technique. The latter, is technically challenging and there is considerable debate over the importance of the sciatic component to post-knee arthroplasty analgesia. The authors do not undertake separate obturator blocks and would welcome evidence-based research to clearly define its potential role in suboptimal femoral/sciatic blocks.

The choice of GA will obviously affect the incidence of PONV and it is now clearly established that a total intravenous anaesthesia (TIVA) technique can lower PONV rate. The GA was standardized in this study to minimize any differential effect between groups. The other comparative studies quoted in the article also show little difference in incidence of PONV between epidural and nerve block analgesic techniques.

Dr Kühne refers to Misra and colleagues’ study of bupivacaine doses. This study did in fact look at serum levels as well as clinical signs of local anaesthetic toxicity. The plasma levels found were reassuring for those who routinely use 3 mg kg\(^{-1}\) in the anterior femoral and sciatic compartment. The authors would, however, suggest that this study should be repeated with levobupivacaine in view of the increasing clinical use of this single isomer local anaesthetic.

Dr Kühne raises issues with epidural analgesia being the reference technique. Femoral and sciatic blocks may well supersede this central neuraxial technique for knee arthroplasty analgesia. Indeed, this study has already been instrumental in facilitating a shift in clinical practice locally.

The letter from Varanese and colleagues strongly supports the use of combined femoral and sciatic nerve blocks for TKRs. They highlight the results of their recent prospective audit of four potential analgesic techniques for UKRs. We would agree that this area warrants further research in view of the increasing use of this surgical technique.
Delayed retroperitoneal haematoma after failed lumbar plexus block

The case report of Aveline and Bonnet brings out an important potential clinical complication occurring after repeated attempts of a deep plexus block and the concomitant need for anticoagulation. Their patient had been maintained preoperatively, uneventfully, on prophylactic phenylindanedione (international normalized ratio (INR) between 2 and 3) which was stopped 5 days before surgery, restarted on day 3 after surgery and withheld for 24 h preceding surgery. It was at present, there is no evidence that the anti-Xa level can be affected by body weight during prophylactic treatment with enoxaparin when renal function is in the normal value. The BMI of this patient was 31 kg m⁻² and did not affect the metabolism of enoxaparin. Low molecular weight heparins (LMWH) are routinely used in Europe for venous thromboprophylaxis in hip surgery and are as effective as oral anticoagulants with less major hemorrhagic side-effects. This case report highlights the problems in the management of chronic anticoagulation in patients with thrombophilia requiring a plexus block. The reintroduction of oral anticoagulants, after a plexus block in which difficulties were noted at any time of the procedure, must be delayed and LMWH preferred during the first weeks.

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Editor—We thank Dr Hsu for her interest in our case report describing a delayed postoperative retroperitoneal haematoma after lumbar plexus block. She suggests the necessity of monitoring the anti-Xa activity to obtain the real profile of anticoagulation during venous thrombophrophylaxis after total hip replacement. In our case, enoxaparin 40 mg once a day was initiated postoperatively 14 h after the block and then 60 mg once a day from 2 days after surgery until INR was between 2 and 3. Total duration of enoxaparin treatment was 7 days. Phenylindanedione was reintroduced 3 days after surgery to achieve the range require in the prophylactic management of her thrombophilia. Preoperative renal function was normal (creatinine clearance 81 ml min⁻¹) and did not change significantly during the postoperative period. In the same way, preoperative haemostasis tests and time of first injection of enoxaparin were in agreement with recommendation of management of plexus blockade and thrombophrophylaxis. Dr Hsu suggests that monitoring of anti-Xa level could have given clear information about the haemostatic state in this case, in agreement with previous guidelines. However, more recently, relationships between anti-Xa activity, efficacy, and adverse effects have not been definitively established when renal function is not impaired and LMWH prescribed in once daily prophylactic fixed-dose. The monitoring of this test is not predictive and not recommended. Our patient did not receive any non-steroidal anti-inflammatory drugs or other antiplatelet medication and was discharged without any neurological symptom or defect. The retroperitoneal haematoma was diagnosed 7 days after her discharge (10 days after interruption of enoxaparin) with an INR at 3.5, which was higher than the INR expected for long-term prophylaxis. Lumbar plexus block was not achieved and several attempts were performed which suggest that, even without evidence of vessel trauma, oral anticoagulation must be delayed and their use justified. At present, there is no evidence that the anti-Xa level can be affected...