well with cardiac output (CO) with impending cardiovascular collapse or at the late period of bupivacaine-induced cardiotoxicity.

The article by Beal *et al.*² showed the changes of hemodynamics (CO decreased and mean systolic blood pressure remained unchanged) in the early period of bupivacaine (cardiac) intoxication. The concept of early and late bupivacaine cardiotoxicity is based on the results of Cho *et al.*³ and its definition can be found in our article.¹ An earlier study showed that a plasma bupivacaine concentration of 1 to 2 $\mu\text{g}\cdot\text{mL}^{-1}$ increased BP and decreased CO.⁴ CO does not always decrease with bupivacaine administration. After convulsive doses (1 $\text{mg}\cdot\text{kg}^{-1}$), CO increases.⁵ In addition, the bupivacaine concentration in our study was much higher than in Beal *et al.*'s. We appreciate Drs. Freysz and Lenfant's comments but, in our view, both studies were quite different.

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Intrathecal morphine vs psoas compartment block for hip surgery

To the Editor:

Souron *et al.* point out that the innervation to the hip joint arises from the lumbar as well as the sacral plexus and that analgesia will be incomplete with a psoas

compartment block alone.¹ The lateral cutaneous nerve of the thigh (LCNT) can still be missed in about 5% of cases.² Cross innervation from the gluteal nerves into the LCNT territory and the relatively low volume of local anesthetic used in this study may equally have contributed to a reduced success rate. A single shot psoas block is also known to have a shorter duration of action compared with intrathecal morphine. A central neuraxial technique will always be more reliable.

In our view the authors are comparing apples with oranges.

We use a continuous psoas compartment block, combined with a single shot parasacral block, as described by Mansour.³ The psoas block is initiated with 40 mL of prilocaine 1% and 10 mL of bupivacaine 0.5%. For the parasacral block we use 20 mL of bupivacaine 0.5%. In conjunction with general anesthesia no further analgesia is required intraoperatively. A further bolus of 20 mL of bupivacaine 0.25% is required after about six hours. Postoperative analgesia is provided with a continuous infusion of bupivacaine 0.125% at 10 $\text{mL}\cdot\text{hr}^{-1}$ until 12 hr before mobilization.

Using this technique our patients often complain about pain in the back and other joints unrelated to their surgery. Souron *et al.* do not refer to the site of pain in their patients, making pain scores on their own unreliable in comparing the effectiveness of these two techniques.

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REPLY:

I thank Drs. Paterson and Kuehne for their comments on our article.¹ Unfortunately, I radically disagree with their comments.

First, the comparison between analgesia techniques is a very common research subject in the anesthesia literature, even when these techniques appear to be different in