Therefore, those patients in the study who had abnormal posterior column signs, but normal lower limb motor power, could have been safely allowed to walk.

Second, the authors' method of assessing posterior column impairment is subjective and therefore prone to error. We also doubt the validity of their control data obtained by testing posterior column modalities, before insertion of the extradural catheter, in patients who may already have been in considerable pain at 2-5 cm cervical dilatation. In the case of vibration sense, it would have been more appropriate, after inducing extradural analgesia, to apply random testing at two different stimulus sites such as the elbow and the ankle joints, with the former serving as the control.

Finally, we note that the authors administered an extradural test dose of 0.5% bupivacaine 3 ml (equivalent to bupivacaine 15 mg) before administration of 15 ml of the extradural mixture (equivalent to bupivacaine 15 mg and fentanyl 30 μg). Thus all patients received a total of bupivacaine 30 mg, and not 15 mg, before testing. This certainly may have affected posterior column sensation and motor power in the lower limbs. More importantly, the initial test dose of 0.5% bupivacaine 3 ml is, necessarily, as the single bolus of 15 ml of the extradural mixture serves equally to detect accidental subarachnoid injection without producing a total spinal block [3]. It is the total amount of local anesthetic drug which determines the extent of a subarachnoid block and not its volume [4].

Contrary to the authors' conclusion, we feel that in our experience, allowing patients to walk after low doses of bupivacaine and fentanyl, whether administered extradurally or in a combined spinal-extradural technique, is safe providing motor power in the lower limbs is preserved. Posterior column sensory impairment alone should not therefore prevent the ability to walk.

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Sir.—We wish to emphasize at the outset that far from being opposed to ambulatory extradural analgesia per se, we believe it is the ideal goal of labour analgesia in the future. However, we contend that safe walking during extradural analgesia has not been attained with the regimen of 0.1% bupivacaine-fentanyl 2 μg ml⁻¹.

While walking is indeed possible in diabetics with impaired proprioception, it must be remembered that the peripheral neuropathy of diabetes mellitus results from a disease entity, in contrast with the transient, muscle weakness induced by extradural analgesia. We are therefore responsible for the medicolegal and other consequences should a mishap occur during extradural analgesia.

Drs Price and Fernando acknowledge that limb proprioceptors are important sources of feedback in the physiology of walking, together with the vestibular apparatus and visual input. However, their reference does not directly support the assertion that "only two of these three need to be intact for walking to proceed unimpaired" [1], and is in conflict with other work which emphasizes the importance of proprioception in the physiology of normal walking [2].

These correspondents suggest that our assessment of posterior column impairment was subjective, but we are not aware of any other test, technological or otherwise, for these modalities of sensation. While clinical examination of the type carried out in our study certainly depends on the training and experience of the clinician, our techniques were in accordance with well established clinical practice, and were conducted by one examiner to eliminate inter-observer bias [3].

We reject the suggestion that our control examination before extradural insertion was invalid. This was conducted between uterine contractions and served also to familiarize the patient with the repeat examination after the extradural was functioning. In our opinion, it is more appropriate to use the same lower limb bony prominences before and after the extradural than to involve the upper limb.

It is the established practice in our unit (a teaching hospital) to administer an extradural test dose in all patients (bupivacaine 15 mg). While this undoubtedly contributed to a larger total dose of bupivacaine given extradurally in our study than others (bupivacaine 30 mg compared with 15 mg), we did not administer an intrathecal dose, in contrast with the Queen Charlotte's group. They used bupivacaine 25 mg with fentanyl 25 μg intrathecally before extradural administration [4]. The neurological consequences of this additional intrathecal dose are unknown, but we suggest they may outweigh the motor and proprioceptive deficit associated with our additional 15 mg given extradurally in the test dose.

We feel therefore that our caution on the safety of 0.1% bupivacaine-fentanyl 2 μg ml⁻¹ for ambulatory extradural analgesia is justified.

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Sir.—The study by Drs Buggy, Hughes and Gardiner [1] makes an important point and reminds us to be cautious in encouraging mothers who wish to walk after low-dose extradural analgesia, despite almost normal motor function. However, if the authors' intentions were to compare their study directly with the study of Collis and colleagues [2] where approximately 50% chose to walk, then I believe that they may have misinterpreted the initial dose used. The Queen Charlotte's group did not use a test dose of 0.5% bupivacaine 3 ml as their initial top-up after inducing analgesia extradurally; they used 0.1%, bupivacaine 15 ml with fentanyl 2 μg ml⁻¹, a dose of bupivacaine 15 mg with fentanyl 30 μg, as their initial top-up after a mean time of 90 min (range 20–245 min). Drs Buggy, Hughes and Gardiner used a total initial dose of bupivacaine 30 mg and fentanyl 30 μg, that is twice the dose of bupivacaine. I wonder if this increased dose could have explained such a high incidence of abnormal distal proprioception, positive Romberg's sign and altered vibration sense?

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