tive, provide an important platform for furthering a hypothesis. Since a study of the effects for anaesthesia on intraoperative complications in patients with URIs posed a potential for increased complications a conservative approach appeared warranted. It was for this reason that a retrospective study was employed rather than a prospective one. We have attempted to limit any bias in this study to a minimum and although we willingly concur that some preselection bias may have occurred, we have limited our conclusions to the patient with uncomplicated infections only. This paper does not serve to dispute dogma, but hopefully represents a basis for further work directed at this perennial clinical problem.

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Continuous epidural infusion of ketamine during labour

To the Editor:

Naguib *et al.* reported the successful use of a small epidural dose of ketamine for postoperative analgesia.¹ Systemic side effects, motor block, vasoplegia or respiratory depression were not observed. Knowing that ketamine is a safe drug for use during labour,² we decided to evaluate the usefulness of a continuous epidural infusion of ketamine for obstetrical pain relief.

Four primiparae, ASA physical status I, requesting pain relief during normal early labour were studied. The study was approved by the University Committee and informed consent was obtained from each patient. In two cases an epidural catheter was inserted at the L₃-L₄ level. A bolus of 30 mg ketamine hydrochloride in 10 ml saline was given, immediately followed by a continuous infusion of 30 mg ketamine/10 ml saline/hour. In the two other cases one catheter was inserted at the L₁-L₂ level and a second at L₄-L₅. A solution of 30 mg ketamine in 3 ml saline was administered through the top catheter, immediately followed by a continuous infusion of 30 mg

ketamine/3 ml saline/hour. The second catheter was intended for use in the second and third stages of labour. Pain scores were obtained using a linear analogue pain scale. Blood pressure, heart rate and respiratory frequency were monitored.

None of the patients reported adequate analgesia at any time during the study. The administration of local anaesthetics was necessary within 45 to 60 minutes, due to insufficient analgesia. Furthermore, all patients complained of blurred vision, felt unpleasant and had mood changes.

Although we did not study a large number of patients, epidural ketamine does not seem to be appropriate for pain relief during labour. Analgesia appears to be insufficient and is accompanied by undesired systemic side effects which seem to be unrelated to the epidurally infused quantity of ketamine.

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REPLY

Thank you for the opportunity to reply.

It has been demonstrated that ketamine interacts with opiate receptors, and that its agonistic action at these receptors is responsible for its analgesic effects.¹⁻³ Since the epidural injection of opiates has proved to be of little utility for the relief of labour pain,⁴⁻⁷ it is not surprising that ketamine was not as effective as well. High doses of morphine (7.2 mg) provided satisfactory analgesia for six hours in 66 per cent of patients only for the first stage of labour in one study,⁴ whereas morphine 2-5 mg was unsatisfactory and did not relieve the pain of labour.⁵ In general, epidural narcotics have proved to be inferior to even dilute concentrations of local anaesthetics. Epidural meperidine 25 mg provided inferior analgesia to 0.125 per cent bupivacaine,⁶ whereas increasing the dose to 50 mg provided good relief in only 50 per cent of patients.⁷

In contrast, epidural morphine was effective in controlling postoperative pain with duration of relief of up to 24 h reported.⁸ The efficacy epidural ketamine in controlling postoperative pain has also been reported.⁹⁻¹¹ Nevertheless, the small number of patients (4) reported by Schneider and Diltor is insufficient to draw any conclusion regarding the efficacy of ketamine, since variability in the duration of analgesia has been observed with

epidural ketamine.^{9,12} Furthermore, the unpleasant side effects observed could be attributed to the relatively large doses of ketamine (52–60 mg) administered over a short period of time (45–60 min).

Much work needs to be done on epidural narcotics and ketamine uptake and distribution in both animal and clinical models in order to explain the inadequacy of analgesia for labour pain with these agents. Since the nature of pain, the pathways and the mechanism of action of neuraxial narcotics and possibly ketamine are not compatible, we must recognize this as a fact and not as a deficiency of drug or dose.¹³

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