Sir,—We read with interest the paper by Kavanagh and colleagues [1] which demonstrated no benefit in terms of pain scores or PCA morphine requirements when a balanced analgesic regimen combining opioid, local anaesthetic and a non-steroidal analgesic drug was administered before thoracic surgery. This carefully conducted study casts doubt on the clinical value of pre-emptive analgesia when applied in a practical manner to a major surgical procedure associated with severe postoperative pain.

We would, however, point out three features in the design of this study which limit its relevance as a rigorous evaluation of pre-emptive analgesia. First, all patients, including those in the control group, received fentanyl before surgical incision. Although the doses used were modest (1 μg kg⁻¹ bolus and 1 μg kg⁻¹ h⁻¹ infusion) they are known to be capable of a significant, although short-lasting, analgesic effect. The high lipophilicity of this compound is likely to enhance its uptake and action into the CNS before the start of surgery.

Second, the technique of intercostal nerve block used in this study involved intercostal injections in the operative interspace as well as two spaces above and below. This technique for intercostal nerve block has been shown to be ineffective compared with placebo at providing analgesia or reducing analgesic requirements after lateral thoracotomy [2]. A technique for intercostal nerve block which has been shown to provide effective and prolonged analgesia after thoracotomy involves injections of all the accessible intercostal spaces on the operative side [3]. This is not unexpected as the lateral thoracotomy incision damages and stimulates many more nerve fibres than are blocked by five intercostal injections. Also, as the authors stated the intercostal blocks were not tested to ensure that patients in the treated group were actually receiving the full combination of analgesic techniques.

In order to assess pre-emptive analgesia fully, the same analgesic interventions should be performed in the treated and control groups, with placebo interventions at the appropriate point [4]. Unless this is done the study is a comparison of two similar but different analgesic regimens, as is the case in this study.

To assess the pre-emptive analgesic effect of balanced analgesia in lateral thoracotomy we would advocate a study in which no analgesics are used in the control group before the surgical incision, a complete set of intercostal blocks is performed on the thoracic wall, and a continuous extradural analgesic technique is used in the treatment group. In this way, all the modalities used in the treatment group would be expected to significantly alter the postoperative analgesic experience. Third, our study used two groups (n = 15 in each) as opposed to their study with eight groups (n = 7 in each). Fourth, our study was double-blinded. Fifth, we utilized i.m. midazolam in our control group. Finally, although the authors have demonstrated thermographic effects of unilateral paravertebral block [3], confirming the level of preoperative pain on the other side was not demonstrated in our study.

In summary, although this interesting study casts doubt on the relevance of pre-emptive analgesia, it cannot be regarded as having shown no pre-emptive effect.

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Sir,—We thank Drs Richardson, Sabanathan and Shah for their interest in our study [1]. Rather than their research [2] directly contradicting with our findings, we suggest that significant differences in experimental design and methodology effectively preclude direct comparisons between their study and ours. First, as discussed in our paper, we have no idea how effective the intercostal blocks were, but all were performed by experienced personnel (the number of nerves blocks was three). Second, we utilized paravertebral block. Second, the multimodal block was not continued into the postoperative period, which might be expected to significantly alter the postoperative analgesic experience. Third, our study used two groups (n = 15 in each) as opposed to their study with eight groups (n = 7 in each). Fourth, our study was double-blinded. Fifth, we utilized i.m. midazolam in our control group. Finally, although the authors have demonstrated thermographic effects of unilateral paravertebral block [3], confirming the level of preoperative pain on the other side was not demonstrated in our study.

Drs Richardson, Sabanathan and Shah raise an important point in referring to the possible postoperative development of neuronal sensitization. This issue has been discussed before [5–7] and may help explain the late postoperative increase in the use of PCA morphine in the pre-emptively treated group [1]. It is possible that the greater early (0–6 h) postoperative analgesic consumption in the control group resulted in pre-emption of subsequent late postoperative pain in that group, thereby resulting in higher late (12–24 h) postoperative analgesic requirements in the treatment group [1].

Drs Doyle and Bowler make three points about the methodology which we shall address in order. First, the issue of intrathecal opioid use before incision was discussed in the paper [1], and was originally raised by us in earlier correspondence [8, 9]. We agree that such use of opioid at induction of anaesthesia confounds the study, however it conforms to common clinical practice. However, we are unaware of any data addressing the relative pre-emptive analgesic efficacy of lipophilic and hydrophilic opioids.

The technique of intercostal block was described in detail in the methods section [1], where we acknowledged that testing the pathways subserving post-thoracotomy pain may not be limited to the intercostal nerves. Finally, the issue of pre-incisional vs post-incisional administration is raised. Our original study examined the precise effect of timing of administration of analgesics in patients undergoing thoracotomy [12]. We have recently confirmed these findings using lumbar extradural bupivacaine in patients undergoing lower abdominal surgery [13]. The current study [1] assumed the potential benefit of pre-emptive administration and sought to explore the combined benefits of pretreatment with multimodal analgesia. In addition, the intercostal blocks were only one of three pre-emptive modalities used, and all the modalities were chosen as being simple interventions applicable to most thoracic oncology surgical procedures.

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