CORRESPONDENCE

BREATHING PATTERN AND PROPOFOL

Sir,—I was interested to read the recent paper by Goodman, Vanner and Wade [1] on the breathing pattern of anaesthetized patients in response to alfentanil and propofol. The authors’ interpretation of the different effects of the two drugs is limited, in that it follows strictly the Oxford school on the study of breathing patterns and breath–time relationships. While most respiratory physiologists recognize the descriptive value of this approach to the study of ventilatory control, most would also regard it as singularly ineffective in revealing the neurophysiology of the respiratory controller.

Terms such as “on switches” have little meaning for the clinical anaesthetist, while carrying overtones similar to the “ego” of Freudian jargon—that is, there is no demonstrable “hardware” correlate. Recent evidence which suggests that propofol has a powerful depressant effect upon the peripheral chemoreceptors [2,3] has been omitted from the discussion. With this suggestion in mind, could the breathing pattern induced by propofol be interpreted differently?

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REFERENCES

USE OF ALFENTANIL IN A PATIENT RECEIVING MONOAMINE OXIDASE INHIBITOR THERAPY

Sir,—There have been no previous reports on the use of alfentanil in patients taking monoamine oxidase inhibitors and undergoing anaesthesia [1]. I should like to report a case in which alfentanil was used in a patient receiving monoamine oxidase inhibitor (MAOI) therapy.

The patient was a 54-yr-old, 84-kg, hypertensive lady with chronic depression who had been treated with tranylcypromine for more than 15 yr. She presented with a history of several episodes of haemoptysis within the past 8 months and was scheduled for rigid bronchoscopic examination. She was otherwise asymptomatic. Her hypertensive disease was controlled with methyldopa 250 mg twice daily and she took tranylcypromine 10 mg and trifluoperazine 1 mg twice a day for depression. She had received a previous general anaesthetic (in 1973) before which her MAOI was stopped, and she could remember having a severe exacerbation of her depressive illness at that time.

Premedication was provided by temazepam 10 mg orally. Anaesthesia was induced with propofol 140 mg and maintained with an infusion of propofol 10 mg kg⁻¹ h⁻¹. She was given supplementary alfentanil in increments of 250 μg to a total of 2.5 mg. Neuromuscular block was facilitated with atracurium and the lungs were ventilated with 100% oxygen via a Sanders injector. Before induction, arterial pressure was 165/105 mm Hg and it settled at 120–150/85–100 mm Hg throughout the procedure, which lasted 30 min.

When the investigation was complete, the neuromuscular block was antagonized with neostigmine and atropine. The patient started to breathe spontaneously and woke up after 2–3 min. She was transferred to the recovery room where she remained awake and alert with an arterial pressure of 140/90 mm Hg, heart rate 75 beat min⁻¹ and ventilatory frequency 16–20 b.p.m.

Patients receiving MAOI therapy are a cause for concern to the anaesthetist because of the potential for serious drug interactions between these agents and opioid analgesics [1]. Although fatal reactions have been reported only in connection with the use of pethidine and related compounds, hypotension and loss of consciousness have occurred with morphine and there are only a few anecdotal reports to support the safety of fentanyl. There have been no previous reports on the use of alfentanil in these patients.

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REFERENCE

EXTRADURAL OPIOIDS IN LABOUR

Sir,—We read with interest the editorial by Dr Felicity Reynolds on the subject of use of extradural opioids in labour [1]. This editorial coincided with her review of the maternal and fetal advantages of extradural analgesia for labour in the British Medical Journal [2]. Dr Reynolds’ internationally recognized expertise, coupled with her important contributions to the evolution of obstetric extradural analgesia, make her a logical choice to voice our cause to the medical community at large.

Dr Reynolds has been an active investigator in the use of extradural opioids since their introduction to the obstetric setting, and recently she described the efficacy of fentanyl in relieving perineal pain when combined with bupivacaine [3]. However, when she states in her editorial: “...hypotension and instrumental deliveries are not avoided...” and “...it is questionable if the gain in enhanced analgesia outweighs the inconvenience of using a controlled drug...” [1] we believe, with respect, that her conclusions may be premature.

The majority of studies on fentanyl and sufentanil in obstetrics have used bolus injections of relatively concentrated bupivacaine. We agree that using opioids with an effective dose...
of local anaesthetic holds little advantage, and in fact adds the possibility of additional side effects to those possessed by bupivacaine. If the therapeutic goal is to reduce the chance of bupivacaine toxicity and eliminate motor paralysis without compromising the quality of analgesia, then bolus dosing of high concentrations of bupivacaine with either fentanyl or sufentanil at the beginning of labour may not be the method of choice.

In contrast, investigation of the efficacy of bupivacaine combined with either fentanyl or sufentanil has proven equally encouraging. Consequently, we are launching a two-centre double-blind, randomised study to compare these local anaesthetic-opioid combinations, even if analgesic quality is not improved. In addition, in their most recent study Chestnut and colleagues have shown that a 0.0625% bupivacaine-0.0002 % fentanyl mixture carried through the second stage provided good to excellent analgesia in 76 % of mothers without increasing the rate of instrumental delivery or Caesarean section [5].

Our recent clinical experience with both bupivacaine—fentanyl and bupivacaine—sufentanil at these low dose infusion concentrations have proven equally encouraging. Consequently, we are launching a two-centre double-blind, randomised study to compare these local anaesthetic-opioid combinations with bupivacaine alone for: efficacy in relieving pain, speed of onset and quality of analgesia, extent of motor block, incidence of accidental i.v. injection, and the need to reduce the frequency of top-ups is less. The third possible reason: we use a catheter without a guide wire, which may be less likely to penetrate a blood vessel; many of those in North America, and we have had no maternal deaths reported from this cause. It would appear from the evidence of Naulty, Ross and Bergen [1] that the combination of a small dose of sufentanil (5 μg) with only 0.0312 %, bupivacaine provides a real advantage of good analgesia and complete absence of motor block—suggesting genuine evidence of potentiation of analgesia, rather than a simple additive effect that has been demonstrated with other combinations. This information was not available to me when I wrote my editorial in February 1989.

I think I can suggest why we have been lagging in conducting opioid infusion studies in the U.K. First, we have not been plagued by the spectre of bupivacaine toxicity as have those in North America, and we have had no maternal deaths reported from this cause. It would appear from this that accidental i.v. injection is less of a problem in the U.K., for three possible reasons: we use a catheter without a guide wire, which may be less likely to penetrate a blood vessel; many of us use three-holed catheters, which reduces the likelihood of a false negative aspiration test; and the use of an extradural filter slows the rate of injection. The second reason that few of us may have hitherto reported using opioid infusions is that we have midwives to undertake top-up injections and therefore the need to reduce the frequency of top-ups is less. The third reason is probably a paucity of infusion pumps coupled, perhaps erroneously, with a desire not to “hitch up” women to yet another gadget. We may be proven incorrect.

Sir,—I thank Dr Herman and his colleagues for their kind remarks, and concur that extradural infusions of local anaesthetic-opioid combinations are the way ahead.

I am aware of the excellent U.S. research on this subject and, indeed, made reference to it in my editorial, but I acknowledge that I gave it less weight than I would now. I have since been educated further by the North American Experience. It appears that opioids make extradural infusions a feasible proposition, and infusions do the same for opioids—in that the combination greatly reduces the need for top-up doses.

Moreover, it would appear from the evidence of Naulty, Ross and Bergen [1] that the combination of a small dose of sufentanil (5 μg) with only 0.0312 %, bupivacaine provides a real advantage of good analgesia and complete absence of motor block—suggesting genuine evidence of potentiation of analgesia, rather than a simple additive effect that has been demonstrated with other combinations. This information was not available to me when I wrote my editorial in February 1989.

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REFERENCES

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