Comparison between alfentanil, pethidine and placebo in the treatment of post-anaesthetic shivering

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Summary

We have compared the effects of pethidine, alfentanil and placebo in the treatment of post-anaesthetic shivering. Ninety patients who shivered after routine surgery were allocated randomly to receive normal saline (n=30), alfentanil 250 µg (n=30) or pethidine 25 mg (n=30). After 10 min, 26 patients had stopped shivering in the pethidine group which was significantly more than the incidence in the two other groups (placebo 7; alfentanil 12) (P<0.0002). Alfentanil was not significantly different from normal saline in affecting shivering. We conclude that alfentanil 250 µg was not effective in the treatment of post-anaesthetic shivering. (Br. J. Anaesth. 1997; 79: 541–542).

Key words

Post-anaesthetic shivering is a common problem in the recovery room, with detrimental effects including increased oxygen consumption and hypoxaemia.1 Pethidine has been shown to be one of the most effective treatments for post-anaesthetic shivering.2–4 Although its mechanism of action is not completely understood, a study using naloxone indicated that alfentanil 250 µg is a specific mu agonist than pethidine, an equi-analgesic dose. It should also follow that if pethidine acts principally via mu receptors in the treatment of shivering, this dose of alfentanil should be at least as effective.

Methods and results

The study was approved by the local hospital Ethics Committee. We studied 90 patients of both sexes, aged 18–70 yr, who developed shivering in the recovery room. All patients were ASA class I or II and had undergone routine general, orthopaedic, gynaecological or ENT surgery. As a consequence of the patients being selected as they recovered from anaesthesia, their consent was not considered valid and with agreement from the hospital Ethics Committee, informed consent was not obtained. Patients with any contraindications to the use of alfentanil or pethidine were not included.

Routine care for patients in this hospital suffering from postoperative shivering consists of oxygen 4 litre min−1 by Hudson mask and covering with a heat reflective blanket. In addition, each patient received an i.v. bolus dose of saline, pethidine 25 mg or alfentanil 250 µg in a total volume of 5 ml. Syringes containing the drug were prepared by recovery room staff after written instructions removed from a sealed envelope. The envelopes were inserted in a random order generated by microcomputer using a shuffling technique.

The investigator giving the i.v. injection was unaware of the treatment received by the patient and assessed the shivering grade before treatment according to a five-point scale: 0=no shivering; 1=one or more of the following: piloerection, peripheral vasoconstriction, peripheral cyanosis without other cause, but without visible muscular activity; 2=visible muscular activity confined to one muscle group; 3=visible muscular activity in more than one muscle group; and 4=gross muscular activity involving the entire body. Tympanic membrane temperature was measured (First Temp...
Our results are consistent with the hypothesis that kappa opioid receptors are more important than mu opioid receptors in the treatment of this condition.

References