CORRESPONDENCE

COMPARISON OF PROPFOLO IN EMULSION WITH ALTHESIN FOR INDUCTION OF ANAESTHESIA

Sir.—The withdrawal from the market of Althesin and propofol has reduced significantly the available choice of i.v. induction agents in the U.K. Propofol (2, 6 diisopropylphenol), previously formulated in Cremophor EL, is now produced in an emulsion to exclude Cremophor-related reactions and decrease the incidence of pain on injection. The two formulations have similar anaesthetic properties, although a small decrease in potency has been observed with the emulsion (Cummings et al., 1984; Glen and Hunter, 1984). We have compared propofol in emulsion with Althesin during the induction of anaesthesia.

Forty unpremedicated patients, ASA grade 1, aged 18-65 yr, undergoing minor surgical procedures, were studied. The patients were allocated randomly to receive either 1% propofol (20 patients) in an oil in water emulsion 2.5 mg kg\(^{-1}\) over 20-30 s or Althesin 0.05 ml kg\(^{-1}\) given at a rate of approximately 1 ml per 20 s (manufacturer’s data sheet). Injections were made via a 21-gauge indwelling needle in the dorsum of the hand. One investigator administered the test drug while another, who was unaware of which drug was being given, recorded the findings in all 40 patients; this was achieved by shielding the test drugs with a hand towel during injection. Apart from oxygen, no other drug was given for 2 min from the start of injection. Thereafter, nitrous oxide and halothane were introduced. The following were recorded: success of induction (loss of eyelash reflex and lack of response to application of facemask); induction time (time to loss of eyelash reflex or time to application of facemask without response); systolic and diastolic arterial pressures and heart rate (Dinamap, Critikon) before, and at 2 and 3 min after, the start of injection; occurrence and duration of apnoea; excitatory movements; reported sensations at the injection site; an overall assessment (good, adequate or poor). Results were analysed by Student’s t test or Fisher’s exact test where appropriate.

There were no differences between the groups with respect to age, weight or sex. Induction times were shorter with propofol (mean 45 s, range 35-65) than Althesin (mean 73 s, range 50-120). Apnoea occurred in 10 patients receiving propofol (mean 35 s, range 20-55) and in one patient receiving Althesin (mean 35 s, range 20-55) and in one patient receiving Althesin (P < 0.01). Excitatory movements occurred in three patients receiving propofol and in six patients receiving Althesin (ns). Pain on injection occurred in four patients with propofol (one severe) but did not occur in the Althesin group. At 3 min from the start of injection, systolic and diastolic arterial pressures decreased to 81% and 80%, respectively, of the pre-induction values with propofol, and to 92% and 95% with Althesin (fig. 1). The differences between the two groups were significant (P < 0.01) for both systolic and diastolic pressures. Over the same period, heart rate increased by 21% of the pre-induction value with Althesin, but did not change with propofol (P < 0.01). Induction was assessed as good or adequate in all patients receiving propofol, and in only 16 of the patients receiving Althesin.

We conclude that propofol in emulsion compares well with Althesin for the induction of anaesthesia. However, propofol caused a greater decrease in arterial pressure with less change in heart rate than Althesin, and may cause apnoea and pain at the injection site.

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REFERENCES


INFUSION RATES FOR I.V. ANAESTHESIA

Sir.—The study of Wright and colleagues (1984) demonstrated an important between-patient variation in dose requirement for both intermittent i.v. and continuous infusion anaesthesia, as well as the limitations of mean values when applied to the requirements of the general patient population. The range of dosage was probably reduced by opioid premedication but, nevertheless, this skew distribution persisted.

A similar study has been carried out with methohexitone, initially using intermittent increments following an induction dose of 1.6 mg kg\(^{-1}\) and later, based on these findings, with infusion

FIG. 1. Mean (± SEM) changes in systolic arterial pressure (mm Hg) and heart rate (beat min\(^{-1}\)) from baseline associated with i.v. injection of propofol 2.5 mg kg\(^{-1}\) over 20-30 s (●), or Althesin 0.05 ml kg\(^{-1}\) (○) given at a rate of 1 ml per 20 s.
supplemented by small increments, as required. The distribution of total 45-min dose requirements (intermittent injection) in 50 patients is shown in figure 1, while figure 2 shows individual dose requirements at 15-min intervals. Log e transformation normalized this skew distribution and the mean value of the transformed data (154 μg kg⁻¹ min⁻¹) was the basis for an infusion technique. Given with 67% nitrous oxide in oxygen to patients undergoing body surface operations with spontaneous ventilation, this dose produced effective anaesthesia in 90% of patients. An infusion rate of 192 μg kg⁻¹ min⁻¹ was required to ensure effective anaesthesia in all patients.

These findings again show the biological variation in requirements of hypnotic drugs. Together with those of Wright and his colleagues (1984), they show the high predictive value of the intermittent injection technique for infusion rates. In addition, they show the limitations of average rates as means of providing anaesthesia in 100% of patients.

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REFERENCE


HUNTINGTON’S CHOREA
A ROLE FOR THE NEWER ANAESTHETIC AGENTS

Sir,—The provision of anaesthesia for patients suffering from Huntington’s chorea has posed problems for the anaesthetist over the past few years. Reports suggesting prolonged clinical responses to both thiopentone (Davies, 1966; Blanloeil, Bigot and Dixneuf, 1982) and suxamethonium (Gualandi and Bonfanti, 1968) have been published in addition to the observations of abnormal plasma cholinesterase variants in these patients (Whittaker, 1980). Although standard anaesthetic regimens using opioids and non-depolarizing myoneural blocking drugs (with and without halothane supplementation) have been used successfully (Farina and Rauscher, 1977; Browne and Cross, 1981), another report suggests the sole use of nitrous oxide, oxygen and a volatile agent (Lamont, 1979). The absolute requirement of rapid, dependable recovery from anaesthesia where the risk of a compromised airway is present, in oro-facial or ENT surgery, or the presence of co-existing ischaemic heart disease or chronic lung disease, makes the latter technique less than ideal. The recent development of short-acting i.v. anaesthetic agents suggests a new approach to these problems.

A 58-yr old man (70 kg), with established Huntington’s chorea, presented for bilateral antral washout and nasal polypectomy. Although his chorea was moderately controlled by haloperidol 2.5 mg 12 hourly and tetrabenazine 25 mg, 8 hourly, he was markedly dysphasic and emotionally labile. He suffered from occasional angina pectoris and chronic bronchitis, placing him in ASA category III.

Following premedication with diazepam 10 mg orally, anaesthesia was induced using alfentanil 0.5 mg followed by Althesin 3.5 ml (diluted to double the volume with saline). Intubation of the trachea was achieved easily in 90 s following atracurium 25 mg. A transient decrease in arterial pressure from a preoperative value of 140/70 mm Hg to 80/50 mm Hg followed induction, but this increased to 110/60 mm Hg by the start of surgery. Anaesthesia was maintained with nitrous oxide in oxygen by IPPV, aliquots of Althesin 0.5 ml and a single incremental dose of alfentanil 0.15 mg. Surgery was uneventful, lasting 30 min, during which the patient’s arterial pressure continued to increase to a value of 160/100 mm Hg, the heart rate remaining below 85 beat min⁻¹.

Whilst a good “train-of-four” response was elicited immediately on ending surgery, and spontaneous respiration with an active cough reflex established on cessation of IPPV, the patient remained drowsy for a few minutes. Neostigmine 1.25 mg with atropine 0.6 mg and naloxone 0.2 mg were given as a precautionary measure to ensure full recovery. Further recovery in theatre, recovery room and on the ward was smooth and uneventful, with the patient remaining comfortable, protecting his airway and talking to the nursing staff.

The short delay in awakening following the moderately small