CORRESPONDENCE

CARDIAC ARRHYTHMIAS
DURING OUTPATIENT DENTAL ANAESTHESIA

Sir,—I have read with interest the paper by Thomas, Thomas and Thurlow (1976). I should like to know why they used uncuffed nasotracheal tubes in one series and not in the other. Nodal rhythm may be associated with inflation of the cuff (Rollason and Hough, 1957). In addition, one wonders why they chose different flow rates of nitrous oxide in the two series.

In a series of 198 dental patients, premedicated with i.v. atropine and breathing premixed gas and halothane spontaneously through a cuffed nasotracheal tube, the incidence of arrhythmia was 17.7% (Rollason and Hall, 1973). There was no hypoxaemia or carbon dioxide retention in this series and those arrhythmias which are known to precede ventricular fibrillation disappeared in one arm-brain circulation time following the injection of 5-8 mg of practolol i.v. Provided that the pulse is felt continuously, I suggest that halothane will continue to be a safe and versatile agent in dental anaesthetic practice.

Finally, unless the patient is known to have a hiatus hernia or is uncomfortable in a horizontal posture, the horizontal position should be adopted routinely.

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REFERENCES


Sir,—Thank you for the opportunity to reply to Dr Rollason’s letter. We studied 100 patients, 50 of whom were anaesthetized using a spontaneous ventilation technique with halothane, the others being ventilated without halothane. The trachea was intubated with the largest possible uncuffed nasotracheal tube. The patients breathed a mixture of 62% nitrous oxide and small concentrations of halothane in oxygen. In the ventilated group the trachea was intubated with a cuffed nasotracheal tube to ensure an airtight fit, and anaesthesia was maintained with 66% nitrous oxide in oxygen with small doses of fentanyl, to avoid awareness. We agree that the groups would have been more comparable if identical tubes and nitrous oxide concentrations had been used. However, arrhythmias during endotracheal intubation were less common with auffed tube (8%) than with an uncuffed tube (14%). As only one case of nodal rhythm was seen in the 40 patients studied by Rollason and Hough (1957) this is unlikely to have been relevant. Furthermore, a 4% difference in nitrous oxide concentration between the two groups is unlikely to have been significant, and we can only reiterate the overwhelming difference in the incidence of arrhythmias in the two groups: 48% in the non-ventilated group and 10% in the ventilated group ($P = < 0.001$).

We are not suggesting that halothane should not be used in dental practice, but have presented the several advantages of a controlled ventilation technique.

In reply to the other points raised by Dr Rollason, we should like to point out that:

1) Thurlow (1972) has shown that premedication with i.v. atropine increased significantly the incidence and severity of cardiac arrhythmia.

2) Continuous palpation of the pulse is difficult for the single-handed anaesthetist, and Muir (1973) has shown that pulse monitors are not satisfactory for detecting cardiac arrhythmia—the e.c.g. should always be used.

3) In the absence of any convincing evidence that rigid adherence to one particular posture confers any special benefit, dentists and anaesthetists should continue to use the posture with which they are most comfortable. Coplans and Curson (1976) have drawn attention to the Registrar General’s returns for 1974, the latest available year. In the seven dental fatalities in which posture was recorded, six patients were supine and only one was sitting.

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REFERENCES


POTENCY AND DURATION
OF ACTION OF DIMETHYL TUBOCURARINE

Sir,—I should like to comment on the paper by Hughes, Ingram and Payne (1976) on dimethyl tubocurarine.

A few years ago we compared the clinical neuromuscular effects of dimethyl tubocurarine chloride (dmTC; Methyl-Curaril-HAF, Ethicon) with tubocurarine chloride (TC; Curarin-HAF, Ethicon) in 94 patients under general anaesthesia (hexobarbitone, fentanyl, droperidol, nitrous oxide in oxygen) undergoing elective extra-abdominal surgery. No patient was known to suffer from kidney or liver disease or from neuromuscular disorders. The inhibitory effect on neuromuscular transmission was determined by means of myomechanograms of the small hand muscles (single twitch response) following supramaximal electrical stimulation of the ulnar nerve (100-120 V, 0.3 ms, 0.2 Hz) (Schuh, 1974).

The overall time from i.v. injection to peak effect was $3.5 \pm 1.1$ min (mean $\pm$ SD; $n = 52$) for dmTC, and $4.4 \pm 2.0$ min ($n = 42$) for TC ($P < 0.05$). Non-cumulative dose-response curves of the two neuromuscular blocking
dmTC has been obtained. On the other hand, renal elimination related to the different pharmaceutical sources from which profile of dmTC. One wonders if this difference may not produce such a striking difference in the neuromuscular paralysis in the study by Hughes would require only about 180 min to attain 90% recovery. Although the two methods employed to study the effect of dmTC differ, this should not produce such a striking difference in the neuromuscular profile of dmTC. One wonders if this difference may be related to the different pharmaceutical sources from which dmTC has been obtained. On the other hand, renal elimination plays a significant role in the termination of action of the positively charged (hydrophilic) drugs and this may be impaired in patients undergoing urological procedures.

Sir,—It is difficult to make a valid comparison between the results obtained by Dr Schuh, who used an essentially isotonic technique, and those which we derived with what is fundamentally an isometric method. Such a comparison becomes even more difficult when different rates of stimulation have been used. In Dr Schuh's studies the rate was 0.2 Hz whereas we used 0.12 Hz. Since the dose of the neuromuscular blocking agent required for paralysis is reduced as the rate of stimulation is increased (Preston and Van Maanen, 1953) it is perhaps not surprising that the potency of dimethyl tubocurarine quoted by Dr Schuh was higher than that reported by us.

On the subject of the duration of action of dimethyl tubocurarine it is somewhat ingenious of Dr Schuh to refer to three abstracts, none of which shows the double logarithmic plots of dose against time for dimethyl tubocurarine on which he bases his argument that there is a striking difference between his results and ours. In fact there is no such difference. Dr Schuh has confused the recovery of the twitch response with that of the tetanus. The 3-hourly recovery time which he quotes from our paper refers to the twitch response after a dose of dimethyl tubocurarine 0.3 mg/kg does not differ significantly from our own estimate of an average time of 124 min to attain the same degree of recovery for that response with a similar dose of the drug.

However, this confusion highlights the genuine differences between the single twitch and tetanic responses and serves to emphasize that for the accurate assessment of recovery from neuromuscular blockade the tetanic response is a more reliable index than that of the single twitch.

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REFERENCE