

# METHOHEXITAL ANAESTHESIA IN ELECTROCONVULSIVE THERAPY

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Thiopentone and succinyl-choline have for many years been used in the Electroconvulsive Therapy (ECT) Department of Tara Hospital. It was decided, however, on the basis of encouraging reports<sup>1</sup>—particularly in respect of the patients' rapid recovery—to carry out a trial of methohexital in ECT.

## METHOD

One hundred anaesthetics, using methohexital, were repeatedly administered to 30 adult European patients re-

ceiving ECT. Their ages ranged from 21 to 70 years (average 46.5, SD 14.61); they comprised 8 men and 22 women, and they suffered from various depressive syndromes, including some with an underlying schizophrenia. They were not otherwise selected. Some had advanced cardiovascular disease, hypertension, bronchiectasis, emphysema, marked obesity, or diabetes, which rendered them 'bad risk' cases. Others were on medicaments such as 'largactil', 'parnate', 'stelazine', etc. One patient had had a leucotomy.

The patients had the usual premedication of 0.6 mg. of atropine subcutaneously, half-an-hour before the anaesthetic.

The anaesthetics were administered either by one of us (H.S.) or by the psychiatric registrars at the hospital. The registrars dealt only with the straightforward cases. The same routine was followed by all those administering the anaesthetic.

A 1% solution of methohexital in sterile water was used. It was given by intravenous injection at the approximate rate of 1 ml. (10 mg.) every 5 seconds. A total of 6 or 7 ml. was usually sufficient for induction. This was immediately followed by  $\frac{1}{2}$ -1 ml. (25-50 mg.) of succinylcholine. The ECT (glissando 120-150 volts for  $\pm$  3 seconds  $\rightarrow$  140-150 milliamperes) was administered immediately the patient became flaccid. Throughout, the patient was kept very well oxygenated, i.e. from the moment the anaesthetic was commenced until the end of the treatment. This procedure was exactly the same as the one hitherto used with thiopentone.

#### RESULTS AND OBSERVATIONS

##### Induction

Patients receiving ECT are commonly anxious and apprehensive, and periodically behave hysterically. Thiopentone now and again aggravated these tendencies during induction. With methohexital this was smooth and gentle, the emotional disturbance invariably subsiding.

##### Duration

Patients regained partial consciousness within 3-7 minutes after the induction—a slightly shorter period than with thiopentone.

##### Recovery Time

The recovery time was short, and this is quite the most striking difference between the two preparations. Nursing staff who have had long experience with thiopentone, spontaneously remarked on this phenomenon. Within 2-3 minutes of coming round, the patients could clearly understand and respond to simple questions, and within 10-30 minutes they were fully conscious and up and about.

##### Side-effects

(a) Some slight muscle tremor was occasionally observed during induction.

(b) No hiccups, coughing or laryngospasm occurred.

(c) Neither thrombophlebitis nor local reactions of any kind were encountered.

(d) Post-anaesthetic headache and nausea were minimal.

##### Associated Effects

(a) Apprehension for subsequent ECT seemed to become distinctly less than in the case of thiopentone.

(b) Mild to moderate clouding of consciousness or disorientation (following immediately after a treatment) seemed to be considerably diminished, compared to either thiopentone-relaxant or unmodified ECT.

##### 'Bad Risks'

No untoward side- or after-effects were encountered in any of the 'bad risk' cases.

#### DISCUSSION

The advantages described above were directly observed in every case.

The total absence of hiccups, coughing, laryngeal spasm, etc., in this series appears to be in marked contrast to the findings of Cilliers and Kok.<sup>2</sup> Of the 68 patients in their study, 21 hiccuped badly, 3 coughed and 2 developed laryngospasm. This difference could probably be attributed to the difference in dosage used for induction (204 mg. by Cilliers and Kok as compared to 70 mg. in this series) and the routine use of muscle-relaxants in ECT.

Taylor and Stoelting<sup>3</sup> reported that 60% of their patients experienced pain along the arm following the injection of methohexital. With the exception of one or two patients who did have some slight pain, this did not happen in our trial; this finding corresponds to that of Jolly.<sup>4</sup>

The factors responsible for the 'associated effects' are not clear. These in themselves, however, are the most interesting findings from the psychiatric point of view, and would certainly appear to merit further investigation.

Finally, it is worth noting that methohexital took less time to prepare for several patients at a time than thiopentone. It is, however, a little more expensive—27 cents compared to 16 cents retail per anaesthetic (100 mg. of methohexital or 0.25 G. of thiopentone). Once prepared, the solution can also be stored for as long as 6 weeks at room temperature.

#### CONCLUSION

It would seem that methohexital is singularly free of some of the shortcomings of thiopentone as the anaesthetic of choice in electroconvulsive therapy and possesses certain advantages of its own.

#### SUMMARY

1. Methohexital was used as the anaesthetic agent in 100 ECTs.

2. It proved to be superior to thiopentone in this procedure, particularly in respect of smooth inductions, rapid recoveries and absence of untoward side-effects.

3. Attention is drawn to certain findings which might bear further enquiry.

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