# OBSERVATIONS ON THE SHORT-ACTING RELAXANT RO/3/0386.

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The present investigation covers a series of 110 treatments with electroplexy in which RO/3/0386 has been used as an ultra short-acting relaxant. This is a heteropolymethylene-bis-trimethylammonium diiodide, $Me_3N + (CH_2)_4 . S . S . (CH_2)_4N + Me_3 . 2I$ in aqueous solution which, being related to the decamethonium compounds, acts by depolarizing the motor end plate, and results in similar clinical effects to those produced by succinylcholine as described recently by Richards and Youngman (1952), Mayrhofer (1952), Bourne Collier and Somers (1952), and others.

The series was made up of 22 female patients ranging in age from 26 to 65 who were given courses of from 3 to 9 convulsions. All were voluntary patients suffering from varying degrees of depression who commenced this treatment within three weeks of admission. Two had arteriosclerosis of moderate severity, two had chronic bronchitis and emphysema, and one had had a detachment of the retina a year previously. All except two have been discharged as recovered.

## Technique.

The usual preparation is made for convulsion therapy, which is given in the morning with the patient fasting. One hour beforehand atropine $\frac{1}{100}$ gr. (0·65 mgm.) is given if there is evidence of bronchitis, and sodium amytal 3 gr. (0·2 gm.) by mouth if there is excessive apprehension. It appears unnecessary to take into account the weight of the patient in computing the dosage of the relaxant, but as a routine 4 mgm. of RO/3/0386 is given initially over a period of 10 seconds. Depending upon the degree of relaxation produced the dosage is subsequently adjusted to from 3 mgm. to 6 mgm. Within 30 seconds of injection there often occurs a mild feeling of suffocation, restlessness, or vague general discomfort. 40 seconds after completion of the injection the shock is given. The customary criteria of adequacy of fit are adopted, such as flickering of orbital and labial muscles, but the intention is not to abolish all convulsive movements but to reduce them to reasonable proportions. Some depression of respiration occurs, but the tendency to cyanosis appears to be less than with unmodified E.C.T., and oxygen, required in a minority of cases, is not given as a routine. Means of assisted respiration should, of course, be available in order to combat prolonged apnoea. I should add that this has not so far been necessary. Recovery from the relaxant is complete in less than 4 minutes after the injection.

## Discussion.

Complications such as prolonged apnoea or symptoms such as backache so frequent after ordinary E.C.T. have not been noted, and one has been impressed by the general " quietness " of the procedure, for which far less time is required than if the longer-acting relaxants such as gallamine triethiodide had been used. There has been willing co-operation on the part of the patients concerned, and it has been found possible with all to avoid the need for intravenous thiopentone by using psychological preparation, i.e., explanation, suggestion, reassurance, etc., before and immediately after the injection, although this might not be possible in every case. It was considered advisable not to give an intravenous barbiturate because of the cases of prolonged apnoea reported by Hurley and Monro (1952), Hewer (1952) and others when this drug has been used in conjunction with succinylcholine. At the present time there is no really satisfactory antidote to RO/3/0386, but owing to its very short action this is not a contraindication to its use. No significant changes in the blood pressure were detected in the present series and except with two of the patients there was less mucus and saliva produced than if E.C.T. had been given alone.

## Summary.

The ultra short-acting relaxant RO/3/0386 has been used on 110 occasions with electroconvulsion therapy.

Results compare favourably with those obtained from other relaxants.

It appears safe and well tolerated in the dosage suggested, and has little effect on the cardiovascular system.

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REFERENCES.

BOURNE, J. G., COLLIER, H. O. J., and SOMERS, G. F., *Lancet*, 1952, i, 1225.
HURLEY, M. J., and MONRO, A. B., *Brit. Med. J.*, 1952, i, 1027.
HEWER, C. L., *ibid.*, 1952, i, 971.
MAYRHOFER, O. K., *ibid.*, 1952, i, 1332.
RICHARDS, H., and YOUNGMAN, H. R., *ibid.*, 1952. i, 1334.