THE USE OF "ETAMON" FOR HIGH BLOOD-PRESSURE IN ELECTROCEREBRAL TREATMENT.

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WHEN electroshock is given, there is generally a rise of blood-pressure for a time. It is therefore stated in various text-books that the treatment is contra-indicated in cases of hypertension. Even premedication with thiopentone and curare does not always succeed in lowering the pressure to a safe level. It is also known that the initial rise in pressure may be followed by a subsequent compensatory fall, so that any drug which prevents fluctuations of arterial tension is likely to be of value. Etamon [tetra-ethyl ammonium chloride (T.E.A.C.)] lowers the blood-pressure by acting on the synapses of the sympathetic nervous system.

Many hospitals have found that electronarcosis is a valuable adjunct to treatment, as it is frequently successful when simple electroshock has failed. On many older patients, however, in whom this treatment is especially useful, the rise of blood-pressure can be very marked; and even forward placement of the electrodes does not always avoid this complication.

At the West London Hospital it was therefore decided to try out the effect of Etamon (Burroughs Wellcome). The bromide salt has the same effect. This drug has been used to lower the blood-pressure in hypertensive states, but there are certain disadvantages in its prolonged use for this purpose. Its administration, however, to combat a temporary rise of blood-pressure lasting 20 to 30 minutes is without any ill effects at all.

We gave the drug, therefore, to a group of 20 cases in order to lower the blood-pressure prior to treatment with electronarcosis. This allowed us to observe the effect of the drug more thoroughly than would be the case with simple electroshock, as the treatment lasted seven minutes.

The following technique was employed in each case:

1. Thorough physical examination including E.C.G.

2. We gave a test dose of T.E.A.C., starting with 2 c.c., intravenously, and injecting slowly up to 3 c.c. No subjective sensation of an unpleasant character was experienced by any patient.

3. The patients were also given, prior to the T.E.A.C., thiopentone 0·2 to 0·5 gm., atropine gr. $\frac{1}{75}$, curare 2 mgm. per stone body weight, or the equivalent dosage of flaxedil. The thiopentone lowers the blood pressure on an average about 27 mm. systolic and 12 mm. diastolic of mercury in these apprehensive, tense patients, and the curare generally has no effect. We had an ampoule of 1·5 c.c. methedrine at hand in case the fall was too marked, but, in fact, it was never used.

The patients were allowed to lie down for 20 minutes before treatment to ensure that physical rest should have its full effect on the blood-pressure.

After the fall of blood-pressure caused by pentothal, the subsequent mean fall due to Etamon for 20 patients was 43 mm. of mercury, systolic, and 32 mm. diastolic.

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Illustrative Cases.

(*a*) Mrs. P—, aged 65. Agitated melancholia with strong suicidal tendencies. Her resting blood-pressure was 220/140 on four occasions.

	B.P. without T.E.A.C., 7.ii.49.	B.P. with T.E.A.C., 9.ii.49.
B.P. before treatment,	220/140	150/105
E.N. 1 min.,	230/150	127/83
,, 2 ,,	230/152	170/116
,, 3 ,,	225/145	165/120
,, 4 ,,	220/145	160/115
,, 5 ,,	230/150	150/115
,, 6 ,,	235/150	150/115
,, 7 ,,	230/150	155/112

Blood-pressure readings were taken after each treatment in this patient for three hours after treatment. The lowest readings were recorded about two hours after treatment. There were no unpleasant symptoms at any time which might be attributed to low blood-pressure.

(*b*) Mrs. J—, aged 53, an obsessional neurosis with depressive features and suicidal tendencies.

	B.P. without T.E.A.C., 7.ii.49.	B.P. with T.E.A.C., 9.ii.49.
B.P. before treatment,	233/142	103/100
E.N. 1 min.,	241/120	185/137
,, 2 ,,	241/146	190/119
,, 3 ,,	236/138	187/119
,, 4 ,,	233/140	212/127
,, 5 ,,	233/140	194/124
,, 6 ,,	235/135	216/120
,, 7 ,,	233/127	205/120

In this case, also, the lowest readings were recorded two hours after treatment.

Both these patients made a complete recovery from their severe depressions, one being with obsessional symptoms. But for T.E.A.C., however, treatment would have been hazardous or contra-indicated.

(*c*) Mr. B—, aged 49, an agitated depression with a reactive factor in his recent history—he made an attempt at suicide by hanging himself with a rope a week before treatment.

	B.P. without T.E.A.C., 12.ii.49.	B.P. with T.E.A.C., 15.ii.49.
B.P. before treatment,	260/107	135/82
E.N. 1 min.,	230/147	140/102
,, 2 ,,	197/130	150/117
,, 3 ,,	192/135	152/117
,, 4 ,,	190/132	160/120
,, 5 ,,	190/137	165/117
,, 6 ,,	200/137	172/122
,, 7 ,,	202/137	—

(*d*) Mrs. K—, aged 29, a catatonic schizophrenic, who had been twice in mental hospitals for suicidal attempts, and who came to us a week after discharge from an observation ward, following a suicidal attempt with 40 gr. of Seconal. She had a total of 60 electro-narcoses and has remained well for three years, doing a difficult job as a designer.

	B.P. without T.E.A.C., 12.iii.48.	B.P. with T.E.A.C., 14.iii.48.
B.P. before treatment,	160/110	125/100
E.N. 1 min.,	180/124	135/105
,, 2 ,,	182/127	155/100
,, 3 ,,	188/128	155/100
,, 4 ,,	180/122	147/105
,, 5 ,,	185/127	124/86
,, 6 ,,	185/120	120/80
,, 7 ,,	180/125	140/96

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(*e*) Mr. A—, aged 72, a recurrent endogenous depression who was suicidally depressed.

	B.P. without T.E.A.C., 17.v.49.		B.P. with T.E.A.C., 21.v.49.
B.P. before treatment,	200/130	.	160/105
E.N. 1 min.,	210/140	.	175/120
,, 2 ,,	260/150	.	200/110
,, 3 ,,	270/160	.	180/110
,, 4 ,,	202/127	.	170/115
,, 5 ,,	210/130	.	160/100
,, 6 ,,	198/129	.	155/95
,, 7 ,,	192/133	.	150/93

SUMMARY.

1. All the twenty cases responded in like manner with a good average drop of blood-pressure, which did not rise to dangerous heights during treatment, as it had done previous to T.E.A.C.

2. We observed no untoward effects clinically, and the patients did not complain subjectively of any unpleasant effects after the treatment. Seven said that they did not have a severe headache after treatment, of which they had complained when no T.E.A.C. was administered.

3. Where, in addition to hypertension, two cases had anginal symptoms on effort, we gave the patients twice their usual dose of glyceryl trinitrite prior to treatment.

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