

E.C.T. IN SCHIZOPHRENIA

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I. INTRODUCTION

CONVULSIVE therapy as a form of treatment for schizophrenia originated very soon after insulin coma treatment and the induction of convulsions by an electric current was first used by Cerletti and Bini in 1938. For many years insulin comas were regarded as the treatment of choice, although E.C.T. was recognized as having some value, particularly in catatonic conditions. In the last eight years the advent of effective chemical therapy with the tranquillizers has tended to overshadow the value of any other form of treatment.

Nevertheless, an enquiry in 1958 (Baker, Game and Thorpe (1)) showed that E.C.T. was the commonest form of treatment for schizophrenia in the mental hospitals contacted, although insulin comas were still given as the initial treatment of choice by the teaching hospitals. This probably means that at that date the majority of schizophrenic patients (particularly the more severely ill) were having E.C.T. Our enquiry revealed marked individual variation from hospital to hospital in the number of treatments given, and perusal of the common textbooks shows that there is little guidance on this subject, and very little precise research has been conducted. Kalinowsky and Hoch (3) point out that of the published papers on the subject, those which claim the best results always describe longer courses of treatment than those which advise short courses. It is surprising that no attempt has been made to compare the effects of specific courses of treatment, either for their immediate result or influence on the long-term course of the illness.

At Banstead Hospital we have been concerned with the assessment of different forms of treatment for schizophrenia. Initially we compared the effects of insulin comas, E.C.T., and chlorpromazine as initial treatments of choice for schizophrenic illnesses. We eventually abandoned chlorpromazine (Baker, Game and Thorpe (1)) because of the high relapse rate once treatment ceased, and many of our patients cannot be relied upon to continue taking any medicine. Later we abandoned insulin comas (Baker, Game and Thorpe (2)) because we found that this treatment had an added risk and far fewer patients commencing

treatment could be expected to complete a course sufficient to give a reasonable degree of recovery. We were therefore left with E.C.T. which had produced a good response in the majority of patients, was safe, and from the point of view of the nursing staff made management easy and enabled us to develop a high morale on the ward. Most of our work had been with a course of twenty E.C.T.s, but following discussion with our colleagues and nursing staff it was thought that this course might be too long and fewer treatments could be used. Clinically, many patients seemed as well after twelve treatments as they were after twenty, and we therefore decided to compare the effects of twelve treatments with twenty. Since those patients having twenty treatments would be in hospital for a longer period than those having twelve, we decided to compare the results of the two different courses given at two different speeds, which we thought would give us some indication whether either the frequency of treatment or the total duration of stay in hospital played any part in the result, as well as the total number of treatments.

II. METHOD

Forty-three consecutively admitted female schizophrenic patients under forty years of age, all of whom had a definite diagnosis of schizophrenia were admitted to the scheme.

Four different courses of treatment were employed. These were as follows:

TABLE I
Distribution of Treatments

Weeks	12 E.C.T.s (Fast)	12 E.C.T.s (Slow)	20 E.C.T.s (Fast)	20 E.C.T.s (Slow)
1 ..	5	3	5	3
2 ..	3	3	3	3
3 ..	3	2	3	3
4 ..	1	2	3	3
5 ..		1	2	2
6 ..		1	2	2
7 ..			1	2
8 ..			1	1
9 ..				1

The Ectonus technique was used—patients receiving from 3 to 6 grains of sodium amylal one hour preceding treatment. Anaesthetics and/or relaxants were rarely used (only about one patient in ten).

Patients were allocated to treatment groups by a random selection procedure once it was decided that they were physically fit.

Assessment of Patients

All patients were rated on the Wittenborn Rating Scale (Wittenborn and Lesser (4)) immediately preceding treatment and again one week following their last treatment. The ratings were carried out by the ward doctor.

One week after completion of the course of treatment the consultant decided *on clinical grounds* whether the patient was fit for discharge. Most of these patients who were considered to be unfit for discharge following a course of twelve treatments were then given eight more E.C.T.s to make a course of twenty.

III. RESULTS

The results of treatment in terms of discharge rates are set out in Tables II-IV.

TABLE II

Results of Treatment—Discharge Rates
(Percentages in brackets)

	Treatment			
	12 slow	12 fast	20 slow	20 fast
(a) <i>All Groups</i>				
Admitted to scheme ..	14	10	7	12
Patients discharged following treatment ..	3 (21·5)	4 (40·0)	5 (71·5)	8 (66·5)
Patients discharged on drugs following treatment	0 (0·0)	1 (10·0)	1 (14·3)	0 (0·0)
Total discharged after treatment	3 (21·5)	5 (50·0)	6 (86·8)	8 (66·5)
	Treatment			
	12 E.C.T.s	20 E.C.T.s	CR.	
(b) <i>12 v. 20 E.C.T.s</i>				
Admitted to scheme ..	24	19	—	
Patients discharged following treatment ..	7 (29·0)	13 (68·5)	2·97**	
Patients discharged on drugs following treatment	1 (4·2)	1 (5·3)	<1·0	
Total discharged after treatment	8 (33·3)	14 (74·0)	2·94**	
	Treatment			
	Fast	Slow	CR.	
(c) <i>Fast v. Slow Course</i>				
Admitted to scheme ..	22	21	—	
Patients discharged following treatment ..	12 (54·5)	8 (38·0)	1·1	
Patients discharged on drugs following treatment	1 (4·5)	1 (4·5)	<1·0	
Total discharged after treatment	13 (59·0)	9 (43·0)	1·06	

* Statistically significant at the 5 per cent. level.

** Statistically significant at beyond the 1 per cent. level.

TABLE III

Critical Ratios for Differences Between Four Treatments

Treatment:	Treatment			
	12 Slow	12 Fast	20 Slow	20 Fast
12 S.	()	1·4	3·9**	2·6*
12 F.		()	1·8	<1·0
20 S.			()	1·1
20 F.				()

TABLE IV

Results of Treatment for Patients not Responding to 12 E.C.T.s and Continuing to 20 E.C.T.s

(Percentages in brackets)

	Original Treatment Group		
	12 Slow	12 Fast	CR.
Number of patients failing 12 and continuing to 20	9	5	
Patients discharged following 20 E.C.T.s	3 (33·3)	2 (40·0)	<1·0

The results of treatment in terms of Wittenborn standard scores are set out in Tables V–X. The Phobic Compulsive and Conversion Hysteria scales have been omitted.

TABLE V

Wittenborn Means Before Treatment

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
20s. N= 6	4·7	2·5	3·0	2·0	3·3	2·2	2·8
20f. N=11	4·0	1·7	4·0	2·8	6·2	2·0	1·2
12s. N=13	4·8	2·5	3·7	2·6	4·5	2·1	1·9
12f. N= 9	4·7	2·1	4·5	3·3	4·5	2·9	1·7
F. Ratio	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE VI

Wittenborn Means After Treatment—All Patients

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
20s. N= 6	2·0	1·3	1·7	1·1	1·7	1·5	1·3
20f. N=11	2·2	1·3	2·1	1·6	3·5	1·7	1·1
12s. N=13	3·5	1·9	2·5	1·8	3·1	1·4	1·6
12f. N= 9	2·0	1·4	2·2	2·1	3·2	2·0	1·2
F. Ratio	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE VII

Wittenborn Means for Patients Discharged One Week Following Treatment

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
20s. N=6	2·0	1·3	1·7	1·1	1·7	1·5	1·3
20f. N=8	1·6	1·2	1·6	1·2	1·9	2·0	1·1
12s. N=2	1·5	1·0	1·0	1·0	1·0	1·0	1·5
12f. N=4	1·2	1·0	1·0	1·2	3·0	1·0	1·2
F. Ratio	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE VIII

Wittenborn Means for All Patients After Their Course of Treatment: 12 v. 20 E.C.T.s

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
20 E.C.T.s N=17 ..	2.1	1.3	1.9	1.5	2.7	1.6	1.2
12 E.C.T.s N=22 ..	2.9	1.7	2.4	2.0	3.2	1.6	1.5
CR. ..	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE IX

Wittenborn Means for All Patients After Their Course of Treatment: Fast v. Slow Course

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
Fast Course N=20 ..	2.1	1.3	2.1	1.8	2.2	1.8	1.1
Slow Course N=19 ..	3.0	1.7	2.2	1.6	2.7	1.4	1.5
CR. ..	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE X

Wittenborn Means for Patients Failing to Respond to 12 E.C.T.s and Continuing to 20 Mean Scores Before Continuation of E.C.T. in Brackets

Treatment	Paranoid Schizophrenia	Paranoid Condition	Schizophrenic Excitement	Hebephrenic Schizophrenia	Depression	Mania	Anxiety
12s. N=4	3.7 (4.2)	2.0 (2.3)	1.8 (2.3)	1.0 (1.8)	1.0 (3.0)	1.2 (1.0)	1.7 (2.0)
12f. N=4	1.5 (4.4)	1.5 (2.0)	1.5 (3.0)	1.0 (3.0)	1.7 (3.8)	1.2 (3.0)	1.0 (1.2)
CR. ..	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

IV. DISCUSSION OF RESULTS

We must emphasize that the patients in this scheme would be considered to have a bad prognosis on the usual criteria. They have often had previous treatment with the tranquillizers, and as noted in our other papers, may be socially isolated.

The significant finding in this research is shown in Table II. This shows that twenty E.C.T.s are more likely to lead to the patient's discharge than twelve E.C.T.s. The other tables show that the differences between the rate at which treatment is given are not significant.

The patients were discharged if they seemed well enough on clinical and social grounds. We must consider whether this decision was biased, either by a desire to discharge patients as quickly as possible or by a preference for one or other course of treatment. The Wittenborn scores before treatment show no significant differences between the four groups. Similarly, the scores after

treatment show no significant differences. Nevertheless, if we look for evidence of bias, we can see in Table VII that in general the patients having twelve E.C.T. who were discharged had fewer symptoms than those who had twenty E.C.T. and were discharged. However, not only are these differences not significant, but if we look at Table VI it can be seen that the patients having twenty treatments as a whole had fewer symptoms than those having twelve treatments.

Lastly, Table X is included to show that those patients who received twelve treatments and subsequently a further eight, did have more symptoms than those discharged after twelve, and fewer symptoms when twenty had been completed.

V. SUMMARY

This present research shows that female schizophrenic patients under forty, who are admitted here will have fewer symptoms after a course of twenty E.C.T.s than after a course of twelve and their likelihood of discharge is significantly improved. It is essential to note that the treatments have been given by the same team of doctors and nurses in an atmosphere of therapeutic hope and a very active social and rehabilitation programme. We do not believe that twenty E.C.T.s is necessarily the ideal course of treatment for the schizophrenic patient, but do believe that further research is essential, in particular an adequate "follow-up" study.

REFERENCES

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