

ECT-CHLORPROMAZINE COMBINATION COMPARED WITH CHLORPROMAZINE ONLY IN SCHIZOPHRENIA¹

N. JANAKIRAMAIAH², M.D., D.P.H., D.P.M.
D. K. SUBBAKRISHNA³, M.Sc.

SUMMARY

Forty-four hospitalized schizophrenic patients, 22 in each of two groups, were treated for a period of 6 weeks with either ECT-CPZ combination or CPZ alone. Ratings on RP scale (Rockland and Pollin, 1965) showed that the ECT-receiving group was significantly better on several measure at second week and also had an earlier onset of beneficial response on "Affect and Mood." However, at the end of 6 weeks, these differences disappeared and on clinical Global Impression of Improvement the two groups did not differ significantly. The implications are discussed.

The role of E.C.T. in Schizophrenia remains ambiguous with both the advocates and the opponents basing their arguments more on personal opinion than on research evidence. With the advent of Chlorpromazine and other neuroleptic drugs, E.C.T. as a treatment in Schizophrenia was superseded. May (1968) demonstrated that ECT given alone, though more effective than milieu therapy or psychotherapy alone, was considerably less effective than either drug therapy or drugs plus psychotherapy. Unfortunately, May (1968) has not addressed himself to the more pertinent question of the superiority of E.C.T.-drug combination over drug alone. It is now clear that for acutely disturbed, hospitalized schizophrenics the most effective single treatment is by drugs. But whether adding ECT to drugs is beneficial is not clear. Klein & Davis (1969) advise ECT if there is lack of response to psychotropic drugs after 6 weeks. Such a course would be inadvisable if ECT and drugs act synergistically. Sargent & Slater (1963) held that ECT should be given concurrently with drugs from the beginning. A significant practical question is whether such a combination yields better results. Is the treatment response better and/or more rapid? It is

surprising that so important a question as this received scant research attention in recent years.

The present study aimed at determining whether there is a difference in treatment response between schizophrenic patients treated with ECT concurrently with chlorpromazine and those treated with chlorpromazine only.

MATERIAL AND METHODS

Fifty patients, diagnosed as having a schizophrenic psychosis according to the Glossary of Mental Disorders and Guide to their Classification (W.H.O. 1974) formed the sample for the present study. The patients were assessed thoroughly clinically to exclude organic brain disease, alcohol and drug abuse. Further, as a safeguard against non-schizophrenics or Schizophrenics getting included in the study a minimum duration of 6 months of illness was mandatory. They had to be psychotic at the time of inclusion. Patients with marked affective component who may be considered "schizo-affective" were particularly excluded. These were selected nearly consecutively, on a catch-as-catch-can basis, within two or three days after their admission into the psychiatric wards of National In-

¹Paper presented at the 29th Annual conference held at Calcutta, Jan. '77.

²Assistant Professor of Psychiatry, National Institute of Mental Health and Neuro Sciences, Bangalore 560 029.

³Lecturer in Biostatistics, NIMHANS, Bangalore 560 029.

stitute of Mental Health and Neuro Sciences, Bangalore. Patients were of both sexes (32 male and 18 female) between 15 and 45 years (mean age=29.2 years) and with the total duration of illness ranging from 6 months to 2 years.

Patients admitted to the study were randomly allocated to one of the two treatments: 300 mg/day Chlorpromazine plus ECT twice a week for the study period of 6 weeks. Direct ECT was given to all those who had to receive it, but on a few occasions, in some patients, it was missed. In no patient, however, was the number of treatments less than eight, and 16 patients received the planned course of 12 treatments. No other physical methods of treatment were given except parenteral Paraldehyde to patients with uncontrollable behaviour.

Assessment: The psychiatric condition of the patients was assessed on RP scale (Rockland and Pollin, 1965), which is a symptom rating scale for use with psychotic patients. It has 16 items, the first ten of them bipolar, and was shown to give a reliable and valid measure of the "Psychoticness" of Schizophrenic patients. Assessments on this scale were done initially and at first, second, fourth, and sixth weeks. Clinical Global Impression of improvement at 6th week was also noted on a 7 point scale (0-6, higher score indicating better improvement). The person making the assessments (N. J.) remained blind to the patient's treatment.

To determine the significance of the differences between the two treatment groups with respect to changes in the RP Scale scores from occasion to occasion, relative to initial scores, analysis of covariance—one way classification was used. Secondly, the significance of changes within each of the two groups, compared to the initial scores was determined by a Paired "t" test. Finally, for the difference on the mean CGI scores Student's 't' test to test the

equality of 2 means was used.

RESULTS

Whole scale positive scores (measuring hyperactive, talkative and acting out behaviour) and whole scale negative scores (measuring the inactive, withdrawn and depressed behaviour) on the R. P. Scale were considered separately. Differences between the two groups with respect to change on the whole scale positive scores at first week, fourth week, and sixth week relative to the initial score were not significant. Changes on the whole scale negative scores followed the same pattern. Differences between the two groups on whole scale positive and whole scale negative scores at second week are shown in Table 1.

TABLE 1—Differences between the two treatment groups on whole scale positive and negative scores initially and at 2nd week

Variable	Initial mean	2nd Week mean	Corrected mean
<i>W. S. Positive Score:</i>			
300 mg+ECT	27.45	10.14	10.20
300 mg only	27.82	19.18	19.12
F=64.1 ; d.f.=1,40; p<0.01			
<i>W. S. Negative Score:</i>			
300 mg+ECT	13.45	4.86	4.75
300 mg only	12.95	11.31	11.43
F=48.59; d.f.=1,40; p<0.01			

Changes on the category scores of "content of Thought and thought Process" were significantly different between the groups only at second week (F=60.82, d.f.=1, 40, p<.01). Both the positive and the negative subscores on "General Appearance and Manner" changed significantly differently between the groups at the fourth as well as at the second week (Table 2). All the significant differences were in favour of CPZ+ECT group.

TABLE 2—Difference between the 2 treatment groups on "General Appearance"

Variable	Initial mean	IInd Week mean	Corrected mean	4th Week mean	Corrected mean
<i>Positive Score:</i>					
300 mg + ECT	8.72	2.54	2.62	1.32	1.34
300 mg only	9.09	6.50	6.43	2.50	2.48
	F=32.09; d.f.=1,40; p<0.05			F=4.65; d.f.=1,40; p<0.05	
<i>Negative Score:</i>					
300 mg + ECT	9.50	3.23	3.15	1.68	1.64
300 mg only	9.04	7.77	7.85	2.77	2.73
	F=35.33; d.f.=1,40; p<0.01			F=4.22; d.f.=1,40; p<0.05	

Differences between the groups on "Affect and Mood" scores were not significant at any time except at the second week on negative score ($F=17.89$; $df=1,40$, $P<.01$) and at the fourth week on positive score ($F=9.59$; $d.f.=1,40$, $p<.05$) when the CPZ+ECT group was better. Changes on "Affect and Mood" from the initial scores through 2nd, 4th, and 6th weeks within groups (Paired 't' test, $df=21$) are shown in Table 3.

Changes on both positive and negative scores on "General Appearance and Manner" as well as on the "Content of Thought and Thought Process" scores over time relative to the initial scores within

the groups were significant from the first week itself in both the treatment groups. Hence no difference in the onset of beneficial response could be seen between the two treatment groups, in contrast to what is obtained on "Affect and Mood." The only exception to this was, however, with respect to the negative score on "General Appearance and Manner" at first week. The difference between the initial and first week scores was significant ($t=3.51$, $p<.01$) in the group receiving 300 mg of CPZ plus ECT whereas it was not so in the other group ($t=0.75$, not significant).

The mean difference between the groups

TABLE 3—Changes on "Affect and Mood" from the Initial scores within groups over time

Variable	Initial Vs. 1st wk.		Initial Vs. 2nd wk.		Initial Vs. 4th wk.		Initial Vs. 6th wk.	
	t	p	t	p	t	p	t	p
<i>Positive:</i>								
300 mg + ECT	2.66	<.05	7.23	<0.01	7.84	<.01	7.38	<0.01
300 mg only	0.39	N. S.	3.28	<.01	5.69	<.001	4.86	<0.001
<i>Negative:</i>								
300 mg + ECT	0.46	N. S.	5.84	<.01	9.30	<0.01	10.43	<.01
300 mg only	0.52	N. S.	1.03	N. S.	7.75	<0.01	7.28	<.01

(N. S. = Not significant)

on clinical Global Impression of improvement at 6th week is not significant ($t=0.3$, $d.f.=42$, $p>.05$).

COMMENT

The findings of the present study are in partial agreement with the commonly held clinical opinion that addition of ECT to CPZ yields a better treatment response. ECT receiving group was significantly better at second week on several components of psychosis than the group without ECT. Secondly, "Affect and Mood" component improved significantly earlier with ECT. This selective effect holds at least a partial explanation for the efficacy of ECT in the treatment of Schizophrenia, in view of the evidence that ECT is rapidly effective against depression. Corroborating with this is the absence of any significant difference between the two groups at 6 weeks. When the time necessary for the CPZ to exert its full beneficial effect is allowed ECT has no specific anti-schizophrenic effect.

That the superior response with ECT-CPZ combination observed early in the course of treatment flattens out to the level of response with CPZ alone at 6 weeks tallies with the report by Smith *et al.* (1967). However, in view of the single level of CPZ in the present study as well as in that by Smith *et al.* (1967) it is not known what effect ECT has at different levels of CPZ. Cole and Davis (1969) analysed the efficacy of CPZ as compared

to that of placebo, using controlled studies, and noted that studies which utilized a very low dose level (400 mg/day or less) obtained equivocal results. They recommended that to obtain a better than placebo response for a set of patients as a group the CPZ dosage must be at least 500 mg/day. It is probable that the 300 mg/day of CPZ in the present study is on the low side and the observed superiority of the addition of ECT is a reflection of its effect on an inadequately treated group of patients. A study of ECT in combination with different levels of CPZ in Schizophrenia is advised towards a clarification of this issue.

REFERENCES

- COLE, J. O., AND DAVIS, J. M. (1969). Antipsychotic drugs. In the schizophrenic syndrome. ed. L. Bellak and L. Loeb. New York: Grune and Stratton.
- KLEIN, D. F., AND DAVIS, J. M. (1969). Diagnosis and Drug treatment of Psychiatric Disorders. Baltimore: Williams and Wilkins.
- MAY, P. R. A. (1968). Treatment of Schizophrenia. New York: Science House.
- ROCKLAND, L. H., AND POLLIN, W. (1965). Quantification Psychiatric Mental Status. Arch. Gen. Psychiat., 12, 23.
- SARGANT, W., AND SLATER, E. (1963). An Introduction to the Physical Methods of Treatment in Psychiatry. Baltimore: Williams and Wilkins.
- SMITH, K., SURPHILS, W. R. P., GYNTHIER, M. D. AND SHIMKUNAS, A. M. (1967). ECT-Chlorpromazine and Chlorpromazine compared in the treatment of Schizophrenia. J. Nerv. Ment. Dis., 144, 284.
- W. H. O. (1974). Glossary of Mental Disorders and Guide to their Classification. Geneva: W. H. O.