

## Regressive Shock Therapy In Schizophrenia

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In electro-convulsive therapy of mental disorders it is not uncommon to give a more intensive course than the customary one consisting of three treatments weekly. Such a procedure has been advocated, particularly for acute manic states, by Kalinowsky and Hoch,<sup>1</sup> Kino and Thorpe,<sup>2</sup> and more recently for depressive and paracid reactions by Valentine.<sup>3</sup> Usually one to three treatments were given daily, with a rapid tapering off to a slower rate of administration.

In recent years, still more intensive procedures have been advocated. According to Cerletti,<sup>4</sup> Bini suggested the repetition of electroshock many times a day for certain patients, naming the method "annihilation." In 1948, Kennedy and Anchel<sup>5</sup> described under the term "Regressive electric-shock" an intensive method for intractable schizophrenic psychoses. Their object was to give electrically induced convulsions with sufficient frequency to produce a state of deep regression. They started by inducing 2 to 4 grand mal seizures daily until the desired degree of regression was reached. Their shortest course consisted of 11 seizures and their longest 50, but generally 20 to 30 were given. They considered that a patient had regressed sufficiently when he wet and soiled himself or acted and talked like a 4 year old child. Their patients were confused and could not take care of their physical needs; they lost weight and frequently had to be spoonfed. The period of posttreatment confusion lasted for about 10 to 14 days.

Kennedy and Anchel<sup>5</sup> reported the results of this form of treatment in 24 patients who had proved refractory to other forms of shock therapy. Eight of their patients were able to leave the hospital, 6 were described as in partial remission but still in the hospital because of a lack of suitable facilities

for home placement, 11 others were regarded as improved and only 1 patient failed to show any improvement.

In view of these highly favorable results, a similar intensive course of electric-shock therapy, somewhat modified as described below in an effort to standardize the procedure, was administered to 52 schizophrenic patients at the Worcester State Hospital.

### *Material*

The patients were selected on the basis of failure to show lasting improvement with other methods of therapy. Since it was desired to explore the potentialities of the method, the choice of cases was not restricted to those showing some of the more favorable prognostic features, such as acuteness of onset or preservation of affect, and the like. There were 27 male and 25 female patients in the group. All patients had received ordinary courses of electric shock or metrazol therapy with the exception of 1 patient who had been given only a course of 50 insulin coma treatments. In addition to the convulsive therapy, 8 patients had been treated with insulin coma and 4 with insulin subcoma. Most of the patients had in fact received two or more courses of shock therapy.

Because of the intensive nature of the treatment the choice of cases was limited to relatively young persons in good physical condition. The ages of the male patients ranged from 21 to 51, with an average of 33.5 years, and those of the female patients from 20 to 42, with an average of 32.8 years.

The duration of the illness, dating from the first attacks, for the male patients varied from 13 months to 22 years, with an average of 8.8 years and a mean of 8.1 years, and for the female patients from 1 to 15 years, with an average of 5.7 years and a mean of 5 years. Counting only the present attack, the duration of the illness for the male patients ranged from 9 months to 22

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years with an average of 7.1 years and a mean of 4.5 years, and for the female patients the range was from 7 months to 15 years with an average of 3.8 years and mean of 2.2 years.

### *Method*

It was decided to standardize the method by giving 4 grand mal seizures daily, spaced so that 2 were given in the morning at one to two hour intervals and 2 in the afternoon, for 7 consecutive days, the aim being to produce a total of 28 major seizures in each case. This aim could not always be accomplished, for certain patients built up such a tolerance that they sometimes had petit mal attacks and major convulsions could not be produced without exceeding what was considered to be a safe dosage. Thus, of the 27 male patients, 1 received only 14 major seizures and another 17; 4 patients sustained 21 and 7 patients sustained from 22 to 27 grand mal attacks. All the male patients were able to finish the course of treatment. Among the female patients, 1 was discontinued from treatment after 12 major seizures because of marked resistiveness, refusal to eat or drink and consequent dehydration. Another was discontinued after 20 seizures because of refusal to eat or drink, and in a third case treatment was stopped after 23 seizures, when the patient developed a rapid and irregular heart rate which lasted for 18 hours. In a fourth case the treatment was stopped after 24 seizures because the patient appeared to be in a state of prostration and collapse. This patient recovered after a few days' rest in bed with no untoward results.

By the end of this intensive course of treatment practically all patients showed profound disturbances. They were dazed, out of contact and for the most part helpless. All showed incontinence of urine, and incontinence of feces was not uncommon. Most of them were underactive and did not talk spontaneously. Many failed to respond to questions but a few patients would obey simple requests. They appeared prostrated and apathetic. At the same time most of them whined, whimpered and cried readily, and some were resistive and petulant in a childish way. They could usually be made

to walk if led and supported, but their movements were slow, uncertain and clumsy. Most of them liked to be coddled. Masturbation was not uncommon. They seemed to have lost all desire to eat or drink and showed no discrimination as to what they were eating. They had to be spoonfed, and most of them lost from 3 to 12 pounds in weight during the course of treatment. They could not dress themselves and none of those tested during this period could complete the task of extracting a match from a match box and lighting the match.

The foregoing symptoms usually began to appear during the course of treatment, but became fully developed at the end of the course and lasted for approximately one to two weeks thereafter. Recovery was gradual, with the ability to walk, to feed oneself and to talk ordinarily being re-established within a week after termination of treatment. Incontinence usually ceased at about this same time. Interest in their own appearance and in persons or objects was shown as a rule for the first time during the second post-shock week.

Our procedure was to treat from 5 to 7 patients at one time, with a special nurse and 2 student nurses assigned to the group during the hours of treatment. This nurse continued to care for the patients for several weeks after the termination of treatment and was the leader in a planned program of rehabilitation in which habit training, occupational therapy and recreational activities were stressed. It is our impression that this program of rehabilitation was an important factor in producing improvement.

### *Results*

The results at the end of a follow-up period ranging from 3 to 15 months are presented in Table 1. Of the total group, 13 patients have been out of the hospital for periods varying from 3 to 12 months. In addition to these patients, 5 patients had been home on visit for periods of from 2 to 9 months, but they were returned to the hospital because of a recurrence of symptoms. Among the patients remaining in the hospital, 6 are able to go home on week-end visits and 5 are on open wards.

TABLE 1

## RESULTS OF REGRESSIVE SHOCK THERAPY IN 52 CASES OF SCHIZOPHRENIA

Type of Schizophrenia	Number of Cases	Discharged on Visit	Much Improved	Improved	Slightly improved	Unimproved
Catatonic .....	10	3	1	2	2	5
Hebephrenic ..	12	2	2	3	1	6
Paranoid .....	11	4	1	4	2	4
Other Types ....	14	3	1	3	5	5
Simple .....	5	1	0	2	1	2
Total .....	52	13	5	14	11	22

With respect to the degree of improvement noted, 5 patients were regarded as much improved. This term is used for those patients making a good social and occupational adjustment outside the hospital under conditions approximating their prepsychotic level. However, they showed slight residuals, such as poor judgment, shallow or loose thinking, or mild disturbances of affect and associations. Fourteen patients were regarded as improved; they were making a decidedly better adjustment, functioning reasonably well, some of them outside the hospital, though still showing psychotic symptoms and requiring supervision. Eleven patients were slightly improved in the sense that some of their symptoms were less pronounced and their adjustment to the routine of hospital life was somewhat better. Twenty-two patients were unimproved.

A scrutiny of Table 1 indicates that the results were slightly more favorable in the paranoid form than in other types of schizophrenia, but the number of cases was too small to render this finding significant.

As might be expected, the best results were obtained in patients with illnesses of relatively short duration. This is brought out in Table 2. Thus, none of the patients whose present attack of illness had lasted longer than 5 years was out of the hospital, though a few of these patients showed worth-while improvement in their hospital adjustment. Also, a better prognosis was noted in patients who had had earlier attacks with good or partial remissions; there were 13 patients in this category and 6 of them were out of the hospital.

TABLE 2

## RESULTS OF REGRESSIVE SHOCK THERAPY IN SCHIZOPHRENIA ACCORDING TO DURATION OF ILLNESS

Duration of Illness (Present Attack)	Total Number of Cases	Discharged on Visit	Much Improved	Improved	Slightly improved	Unimproved
Under 3 years	22	9	5	5	2	10
3-5 years .....	12	4	0	5	2	5
5-10 years .....	11	0	0	3	5	3
10 years .....	7	0	0	1	2	4

*Comment*

The foregoing results are less favorable than those of Kennedy and Anchel<sup>5</sup> but more favorable than those recently reported by Weil,<sup>6</sup> who used regressive electroplexy in 18 patients with no lasting beneficial effect. In 36 per cent of our patients considerable improvement occurred and in 21 per cent slight improvement was noted. In 25 per cent of the total group return to the community was accomplished. Five other patients had to be brought back to the hospital after they had been at home for from 2 to 9 months. This suggests the likelihood that with a longer follow-up period, a recrudescence of symptoms may occur in some of the patients who are now adjusting well. Even so, the results are encouraging because they indicate that a certain number of patients who are intractable to customary methods of treatment and who appear to be advanced schizophrenics still possess surprising potentialities for improvement. The fact that this improvement may be only temporary should stimulate further research in the field of therapy for such patients.

The question arises whether regressive shock therapy may produce permanent cerebral damage. Our patients did not show any significant neurologic changes, and clinical psychiatric observations did not reveal any organic mental impairment apart from the temporary changes already described. More detailed psychologic studies are being performed, but as yet the number of patients tested is too small to warrant any conclusions. Electroencephalograms were taken in many of the cases before, during and after the course of treatment. The observations have been reported by Callaway,<sup>7</sup>

who found certain unusual changes in slow wave activity of a temporary nature but no evidence of permanent alterations.

One may wonder whether the state of confusion and prostration produced by this method of treatment should be called "regressive" in the sense that it conforms to the psychopathologic concept of regression, particularly as developed in psychoanalytic theory. In this connection the following observations may be of interest. Toward the end of a course of treatment, one patient seemed totally unable to swallow and since she was taking no fluids whatsoever, treatment was discontinued after 20 seizures had been given. The neurologic examination was negative. When fluid was poured into her mouth, it ran out directly or accumulated in the bottom of her mouth and flowed out later. However, when a standard nursing bottle with nipple was placed in her mouth, she began to suck and was able to swallow the milk slowly but completely. To our further surprise, it was found that the other patients being treated at this time also readily fed from nursing bottles, and they continued to do so for 9 days after the cessation of treatment. It would thus appear that the term "regressive" is justified in our cases in so far as it designates a return to an early, infantile mode of activity in one specific sphere.

Cerquetelli and Catalano<sup>8</sup> studied the changes associated with intensive electroshock therapy in terms of an "annihilation syndrome." They compared it with the psychopathology following prefrontal leukotomy and indicated a close parallelism with the advantage of reversibility in the case of shock.

In conclusion, it should be emphasized that regressive shock therapy is a drastic procedure which requires close medical supervision and intensive nursing care. It is justified only in cases where standard methods of treatment have failed and the course of the illness indicates such a poor prognosis that the final step of lobotomy may be considered. Our observations suggest that

regressive shock therapy may be successful in salvaging a small but worth-while proportion of such cases.

### Summary

An intensive method of electro-convulsive therapy is described under the term regressive shock therapy. Four treatments are given daily at spaced intervals for seven consecutive days.

This form of treatment was administered to 52 schizophrenic patients who had failed to show lasting improvement with more conservative forms of shock therapy.

Five patients were much improved, 14 were improved, 11 were slightly improved and 22 were unimproved at the end of a follow-up period ranging from 3 to 15 months. Thirteen patients, or 25 per cent of the whole group, have been out of the hospital for periods varying from 3 to 12 months.

Although no permanent ill effects have been noted, regressive shock therapy is regarded as a drastic procedure which requires close medical supervision and intensive nursing care. It is justified only in cases where standard methods of treatment have failed and the course of the illness indicates a poor prognosis.

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