CLINICAL EXPERIENCE IN ELECTRICALLY INDUCED CONVULSIONS

BY

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From the dim past psychotic patients have been subjected to various forms of treatment with the object of creating a shock to their central nervous system; some of these methods were no doubt barbarous in the extreme. In more recent times shock treatment has been elaborated. Insulin, cardiazol, triazol, etc., have had their turn, and even these have had their risks and terrors.

The therapeutic results of the various shock treatments seem, in the light of experience, to vary little, and it may be supposed that when a remission occurs it is due to some effect common to various methods. For this reason the recently introduced treatment by electrically induced convulsions has aroused interest not so much by its results as by its somewhat dramatic details. It seems worth while, however, to put on record a purely clinical account of the results obtained in a small series of cases. There is no need to describe the method and apparatus here, since this has been done recently by Fleming, Golla, and Walter (1939), Shepley and McGregor (1939), and others.

It is only by consideration of individual case histories that patients suitable for this treatment can be selected: it is by no means a panacea for all types of mental disorder. The following are the cases I have taken for treatment.

Case 1.—A woman aged 35 with katatonic stupor had been under my care for nearly two years and had failed to react to insulin treatment. She was at all times resistive, difficult with her food, and sometimes cataleptic. She had never been really robust mentally. During these two years she had not had a satisfactory remission. After her first electrically induced convulsion a definite change was noted: the mists of confusion seemed to have begun to lift. After three treatments she was taking her food naturally and with a considerable degree of relish; she began to take an interest in her personal appearance, and was able to converse normally. In all she was subjected to fourteen shocks. In the course of this treatment there was a period when for about a week she became rather exalted and showed signs of a manic nature; but this subsided, and she left my care two days after the final shock. During this period of treatment she put on nearly a stone in weight. I understand that after a lapse of three months she still remains stable.

Case 2.—A man aged 35 was suffering from a psychotic state of anxiety which rapidly progressed into a resistive stupor—a fairly familiar type in mental hospitals. He was suicidally inclined and had delusions of unworthiness, until he became too confused to express himself in articulate speech. He had to be spoon-fed, and was passively antagonistic to all attention and faulty in habits. He was admitted here in this state shortly after the outbreak of war. He was at first given a course of modified insulin treatment, which alleviated his condition. He relapsed and became rigidly negativistic and completely indifferent to all his bodily needs. He was taken to the Burden Neurological Research Institute, and after his initial shock during the first day was very drowsy; the next morning he dressed himself and began to take his food naturally. He continued to progress satisfactorily, and when he had been given thirteen shocks he left my care, having put on 13 lb. in weight. After two and a half months I hear that this remission is being maintained, and that he is shortly going to take up the work he had to relinquish last summer.

Case 3.—A woman aged 25 was admitted here last November. She had not been well mentally for over three years and was rapidly deteriorating. Before admission she had been treated surgically for the removal of an ovarian cyst.

She appeared to be a case of schizophrenia. She was silent, morose, "shut in," and at times violently impulsive. She received eleven shocks, when she became excited and maniacal, and owing to the difficulty of transport during the "freeze-up" in the early part of this year I was unable to take her to the institute for treatment. Since the weather has improved she has had further electrical treatment, and is now well-behaved and taking her food naturally. She has put on 12½ lb. in a month. It has now been decided to stop the electrical treatment and substitute endocrine injections of dimenformon daily. Her progress both mentally and morphologically is satisfactory.

Case 4.—A well-built woman aged 27, nearly six feet in height, was admitted here in 1933. She was a case of schizophrenia, hallucinated, incoherent, degraded, and dangerously violent. There was a very bad family history of insanity. During these years there had been passing phases when for two or three days she had been well-behaved and amiable. These have been few and far between, and it was during one of these short-lived phases that I was able to take her to the institute for treatment. By so doing this period of amiability was extended to nearly a month, when, on the onset of menstruation, which had been very irregular and practically absent for seven years, she became too difficult to take to the institute. The previous state of affairs seemed to have become re-established. After just over ten days she spontaneously asked me to take her for some more electrical treatment. She is now being treated in the same way, with the addition of dimenformon injections to ward off, if possible, the complication of menstrual difficulties. She is careful of her personal appearance, reads the papers, knits, and takes a general interest in life again. Oddly enough, she at first always dated her letters 1933, the year she originally broke down mentally. She would not believe or understand that she has been under care here for over seven years. She has had seventeen shocks in all, and for a month has kept very well mentally. She has put on exactly one stone in weight during this treatment.

Case 5.—A man aged 25 with depressive stupor came to me shortly after the outbreak of war. He is a bachelor living on a small-holding in the country. He was told he would have evacuees to house and look after. This precipitated a nervous breakdown of considerable severity. There had been a previous attack two years before, but of much slighter intensity. He came to me in a state of psychotic anxiety somewhat similar to that of Case 2. He would not converse, and during the period of three months before electrical treatment he never spoke a coherent sentence, except for a few stammering efforts. He was resistive and had to be spoon-fed. The anxiety state had now passed into a resistive stupor. He was taken to the institute. After his first shock, and when he had recovered from the drowsy state which always follows this treatment, he was able to converse with me coherently without a trace of a stammer and quite rationally. He admitted that he was feeling all right, but could not understand what had happened. After ten shocks he left my care, having gained 9½ lb. in less than a month. He remains well after an interval of nearly two months.

Case 6.—I consider this case, that of a woman aged 63, to be the most remarkable in the series. The patient had been under my care for just over two years with well-established agitated melancholia. During the whole of this period she had been grossly faulty in her habits, had to be spoon-fed, and was resistive and generally obstructive. She had been confined to her bed, where she emitted almost ceaselessly a sound like the whining of a puppy shut away from its mother. She was considered fit to undergo shock treatment, although it was felt that there was a risk owing to her weakened bodily condition. After three shocks she began to feed herself. Her habits were less faulty and the whining noise diminished in volume and frequency. She has now had twelve shocks, and is pleasant in her manner and interested in her personal appearance. Her habits are now correct. She has recently left my care to live with her husband at home. During this treatment she has gained 1 st. 6½ lb. In this case there is

undoubtedly some degree of dementia, but this may have been present before her original breakdown became acute over two years ago. She dates everything from the year 1938, the year she started her illness. She also states that she had no idea that she had been under my care for two years.

Case 7.—A youth aged 18 came to me a few weeks ago. He was a typical early case of schizophrenia, and was restless, frightened, and deluded. He stated that he had committed a serious crime and wanted to hand himself up to the police. He had apparently been wandering about aimlessly at home and was a cause of great anxiety to his parents. On the day of his first visit to the institute he was under the impression that I was taking him to the Old Bailey. After three shocks he became more reasonable, and now, after ten shocks, he is practically back to his normal. He no longer looks terrified. His conversation is rational, and he appears to be bright and cheerful, such as one would expect from a boy of his age. He readily agrees that he had been behaving absurdly and that he had talked a lot of nonsense. It is assumed that after a few more shocks, making a total of fifteen to twenty, he will be able to return home. He has put on a stone in weight since admission.

Conclusions

I think it as well to classify the results of the above cases from the social standpoint, according to the degree of remission achieved, as follows. **Class A:** a complete return to normality and ordinary social intercourse outside a mental hospital. **Class B:** a marked improvement in behaviour, sufficient to permit the patient to enter into the higher spheres of mental hospital life. **Class C:** no change, the patient still requiring constant attention. Cases 1, 2, 5, 6, and 7 can be placed in Class A, although Case 6 may be a candidate for Class B, as this patient shows signs of dementia to a small degree; but she is quite suited to spend the eventide of her life at home with her husband. Cases 3 and 4 are at present in Class B, but would appear to be not far off the Class A standard.

It will be seen that the results are entirely satisfactory, admitting at the same time that the cases were specially selected for treatment. Except for the period of the "freeze-up," when it became impossible for me to transport these patients to the institute, they have all been treated with three shocks a week. The fact that shocks were administered three times weekly may be of some importance, since other groups of cases which received only two shocks a week have not fared so well. It is possible that the method of Sogliani (1939a, 1939b), who gives several shocks a day, may produce even better results in patients of suitable physique. When shocks are given only twice a week one has a definite impression of "missing the boat" by reason of the long interval.

The great advantages, in my opinion, over other forms of convulsion therapy are:

1. The patient suffers no unpleasant memories.
2. The loss of consciousness is instantaneous as soon as the lever is pressed.
3. The possibility of fractures seems to be remote, provided certain precautions are taken. The precautions are: (a) A suitable resilient gag is placed between the teeth (of course after any dentures have been removed). The best article is a rubber ring, such as is sold at dog requisites shops; this keeps the tongue away from the teeth, and also has a certain amount of "give" during the tonic stage of the convulsion. (b) The patient should be lying flat on the back, so that the possibility of a compression fracture of the bodies of the vertebrae is lessened. It was found that a resistive patient often would not lie flat after the insulated electrodes had been placed around the forehead. To overcome this a small non-convulsive shock was administered which made it possible for the patient to be straightened out and the gag placed in position, when the major shock was given.

4. The willingness of the patient to co-operate in this form of treatment after the first two or three shocks.

5. The celerity of the treatment. The patient can be treated in his everyday apparel, provided any constricting clothes are loosened around the neck and chest and the footwear is removed.

6. The appetite is definitely stimulated and the body weight rapidly increased.

7. The chronic constipation associated with these types of psychosis disappears early in the treatment.

8. The portability of the complete apparatus.

9. The manipulator need not be a highly qualified electrical technician.

Although the ultimate prognosis of this form of treatment is problematical at the present time, there seems no reason why the remissions should not be prolonged indefinitely by "maintenance" shocks—say three in a single week—if the patient is found to be relapsing. I feel certain that patients would submit to this far more readily than they would undergo the terrors of cardiazol or insulin; besides, this could be undertaken in their own homes, provided suitable electricity were available. The contraindications to shock treatment would seem to be arterial and cardiac diseases, high blood pressure, and intracranial diseases.

Summary

The treatment of certain suitable cases of psychosis by electrically induced convulsions is discussed.

Records are given of seven selected cases which received shock treatment for various psychotic disorders.

The results of the use of this method are classified and its advantages over other forms of convulsion therapy are enumerated.

I am deeply indebted to Professor F. L. Golla, the director of the Burden Neurological Research Institute, Bristol, for the courtesy shown me, to Mr. Grey Walter, and to the staff of the Institute, who have given me every facility in the treatment of the patients whom I have taken there.

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AXIAL ROTATION OF THE PREGNANT UTERUS

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The diversity of lesions which, in the pregnant woman, may cause acute abdominal pain with uterine tenderness and rigidity, vomiting, and increasing prostration, was stressed by Barnett and Harris in the *Journal* for July 22, 1939 (p. 167). Wide though this diversity may be, the essential point is to determine, so far as possible, whether the lesion is extra-uterine and therefore probably requiring surgical intervention, or intra-uterine and perhaps amenable to sedatives or to some obstetrical measure. There must remain, however, cases in which the diagnosis is in doubt until laparotomy is performed, and an occasional case in which the lesion, though uterine, must be dealt with surgically.

Such lesions as perforated peptic ulcer, acute pancreatitis, and acute cholecystitis can usually be recognized by their distinctive features. Barnett and Harris found, however, that pregnancy complicated by acute suppurative intra-abdominal lesions, though uncommon, is likely to lead to diagnostic uncertainty because of a superficial resem-