

PSYCHIATRY

Electric Shock, a New Treatment

Shot Directly Through Brain, Electricity Now Used To Restore Patients With "Hopeless" Mental Disease

By MARJORIE VAN DE WATER

AN ELECTRIC shock, shot directly through the brain, provides new hope for bringing patients back from the living death of mental disease to mental health.

Coming at a time when war is subjecting the population of the whole world to those intolerable mental strains that precipitate mental disease, this new use of electricity for mental health instead of for death is being enthusiastically welcomed by the medical profession.

I saw this new, dramatic shock treatment tried at the New York State Psychiatric Institute. Introducing it to American physicians is Dr. Lothar Kalinowsky, who has already administered it in Rome, where the treatment originated, in Paris and in London. He stood at the switch to treat two American boys. Dr. Kalinowsky is now working at the Psychiatric Institute with Dr. S. E. Barrera.

One of these two young men, chosen to be first to receive the electric shock treatment here, has seemed doomed to a chronic mental illness, schizophrenia. He has failed to respond to any other known treatment.

The other has had periods of improvement, always followed by relapses. He is diagnosed by psychiatrists as suffering from obsessional neurosis with depression.

I cannot tell you the names of these two boys because now it is hoped that they may get well again. We can call them Johnny and Jack.

No Electric Chair

There was no "electric chair," no shaving of the head. The current does not pass through the whole body, only through the brain from one temple to the other. It is this fact, together with the small amount of power used and the very brief time of the shock, that makes the treatment safe. What looks a little like ice tongs or a giant pair of calipers holds, on each tong, a soft rubber pad with four little strips of copper tape. These are the two electrodes. They are adjusted comfortably over the head. The patient has stretched out on a table, familiar to all hospitals.

Then, when preliminary tests had been made, Johnny received his shock. Instantly, when the current was switched on, Johnny became unconscious. He knew nothing more of the treatment. And he will not remember it later.

But what happened at first was an epileptic fit of the mild sort known as petit mal. After he came out of it and regained full consciousness another shock was applied. This time the voltage was stepped up from the first dose of 85 volts to 90 volts. He received 500 milliamperes of current the first time, 750 milliamperes on the second dose. But the electric current was sent through the brain only for one-tenth of a second each

time. For that brief time, I was told, a person can stand much higher voltages without any harm, as shown by animal experiments.

Johnny's fit was violent. It took several doctors and nurses to hold him on the table and keep him from hurting himself. But it was all over in just 65 seconds. Then they put him on a bed where he thrashed around for a while and then was quiet. Someone asked him who is running Germany. "A long time ago there was a man named Hitler," he said.

A half hour later I talked with him. He was up walking around, but said he didn't know anything that had happened after the "things" were put on his head.

"Say, Doctor!" he called. "Things are much clearer now! Will it last?"

This is Johnny, the depressed patient. He seems cheerful enough now.



ELECTRIC SHOCK APPARATUS

Dr. Lothar Kalinowsky (left) is here describing to Dr. S. E. Barrera, principal research psychiatrist of the New York Psychiatric Institute, details of the electrical apparatus which they are about to use in treating a mental patient. The complete apparatus is portable and can be carried to ward or even to patient's home for treatment. The pads with criss-crossed copper tape, on the ends of the gadget held by Dr. Kalinowsky, are the electrodes.



STUDIES EYES

As Dr. Kalinowsky adjusts the electrodes for the first electric treatment for mental disease at the New York State Psychiatric Institute, Dr. E. Milch examines with an ophthalmoscope the inside of the patient's eyes. Research of this sort carried on during the electric treatment will also provide physicians with new knowledge about epilepsy, for the electric shock produces an epileptic fit. Dr. Barrera is closely watching the patient.

Treatment of Jack, the "hopeless" sufferer from that most common of all mental diseases, schizophrenia or dementia precox, was very much like that of Johnny except that Jack required only one shock and did not go through the period of restless thrashing around afterwards. After it was all over, he had no knowledge whatever of having had any treatment.

The fit produced by the electric shock is very much like that of the metrazol shock therapy which is now widely used in the United States, especially for schizophrenic patients.

But the great advantage of the electric treatment is that the patients do not remember and dread the shock and resulting fit. There is no period of suspense and fear as there is in using metrazol between injection of the drug and loss of consciousness. After the fit, the patient is never excited or disturbed as he may be after metrazol.

With the electric treatment, the patient is relaxed when the convulsion seizes him and so it is hoped there may be less danger of the patient's hurting himself.

In addition, electricity is always obtainable, is cheap and requires a smaller

staff of doctors and nurses than drug shock treatments do.

Finally, when the switch is turned off, the patient is left free of any after effects. No drug is left in the body.

This electrical treatment, now introduced in the United States, was originally developed in Rome under the guidance of Prof. U. Cerletti of the Psychiatric University Clinic.

This use of epileptic fits to battle mental disease is not the first instance where medicine has induced one disease in the hope of destroying another. Even better known is the deliberate production of malaria in the patient with brain syphilis in order to stop the disease-causing spirochetes.

One of the first drugs used to bring on induced epileptic seizures for healing purposes was camphor. Metrazol is now replacing camphor, because it acts more immediately. But like camphor, it is being used reluctantly for the reason that physicians know little about how to bring a patient out of the induced convulsions. And the severity of the convulsions cannot easily be controlled. Sometimes they are very severe indeed, and in the strain of them, patients may even fracture their bones or dislocate joints.

More widely accepted, perhaps, but much more expensive and difficult to administer is the insulin treatment which acts in a similar way to shock the patient back from his world of phantasy to reality and health.

These deliberately-induced shocks are not the first known to cure mental disease. Dr. N. D. C. Lewis, director of the New York Psychiatric Institute, has told me of several surprising cases within his own knowledge that had been accidentally shaken out of their mental fog by a severe shock.

Snake Bite Gives Healing Shock

One case occurred during the time when Dr. Lewis was experimenting with snake venom as a death-producing agent in animals. He had a collection of extremely venomous snakes and kept them in secure cages with a special device for putting in food out of reach of their deadly fangs.

The snakes liked sun. One day while they were sunning outdoors outside the laboratory, a patient, perhaps bent upon suicide, broke out of the line of men taking exercise, rushed to the cage of snakes, tore the top off, and thrust his arm in among the serpents. He was badly bitten.

Within 15 minutes Dr. Lewis was working over him with shock-combatting drugs. But already the patient was mottled from the poison, his eyes were rolled back in his head. He seemed close to death.

But he lived.

And when he recovered, his mental disease was gone.

Presumably it was the shock that made him well. And presumably it is the shock that gives insulin, metrazol and the other drugs of this family their therapeutic effect.

Some physicians are assuming that it is the shock that makes a bolt of electricity through the brain restore mental health. But this is not known definitely. Medical science has much to learn about how these treatments act. Dr. Kalinowsky told me that personally he has doubt that it is the shock that, in the case of electricity, produces the beneficial result.

Just what it is, he is not yet ready to say. Perhaps it destroys diseased brain cells. Perhaps it induces new pathways in the brain over which brain currents may pass. This is for future research to disclose.

In the meantime, it is hoped that the day may come when the man or woman suffering from delusions, abnormal fears, split personality, or a regression into



CONVULSION

This group of physicians watching the first electric treatment for mental disease to be given at the Institute are all needed to hold the patient on the bed as the convulsion wracks his body.

fixed posture and mutism may some day be cured simply in his own home or a local hospital by a physician who places two electrodes on the distressed head and then just plugs in on ordinary house current stepped down to the harmless voltages used.

Science News Letter, July 20, 1940

MEDICINE

Cure for Bubonic Plague Seen in New Chemical

CURE of bubonic plague by chemical remedies of the sulfanilamide group is expected as a result of successful experiments with plague-susceptible mice. The experiments were made by Dr. S. S. Sokhey, director, and Dr. B. B. Dikshit, pharmacologist, of the Haffkine Institute, Bombay, India, and are reported to physicians. (*Lancet*, June 8)

One of these remedies, sulfathiazole, saved 80% and 90% of the plague-stricken mice after the disease had reached the most dangerous stage, when the germs had invaded the blood stream.

Even better curative results are hoped for when sulfathiazole is used to treat humans because the disease is much more severe in mice than in men. Drs. Sokhey and Dikshit hope soon to try it on human cases of plague.

Sulfathiazole proved, in mouse plague, to be more effective than sulfapyridine or other of the sulfanilamide group of chemical remedies. Results of treatment with sulfathiazole are as good as those obtained with the Haffkine Institute anti-plague serum.

Because plague is present in wild rodents in the Pacific Coast area of the United States, the use of sulfanilamide chemicals in combatting this disease may some day be of practical importance in this country.

Science News Letter, July 20, 1940

PHYSIOLOGY

Ability to Make Vitamin C Linked With TB Resistance

Men, Monkeys and Guinea Pigs, Who Must Get Their Vitamin C From Diet, Are All Susceptible to TB

ABILITY to manufacture anti-scurvy vitamin C in the body and ability to resist invasion of the tuberculosis germ are apparently linked in some as yet unexplained way.

The relationship is pointed out by Dr. T. W. B. Osborn, of the University of the Witwatersrand, and Dr. J. H. S. Gear, of the South African Institute for Medical Research, Johannesburg. (*Nature*, June 22)

Man requires vitamin C in his diet because he is unable to manufacture it in his body. Monkeys and guinea pigs also must get their vitamin C rations from their diet. Men, monkeys and guinea pigs are also susceptible to both human and bovine tuberculosis.

Dogs and rats, on the other hand, are known to be able to manufacture the anti-scurvy vitamin C in their bodies. These animals and also mice are resistant to both human and bovine tuberculosis germs.

Mice may or may not be able to manufacture vitamin C in their bodies. Authorities are still in doubt on this point. There is also some question as to whether or not rabbits, pigs and cattle can make this vitamin or whether they depend on food for it.

These same animals, rabbits, pigs and calves, as well as goats, sheep and horses, stand between man and dogs in ability to resist tuberculosis germs, having resistance to the germs of the human disease but being susceptible to germs of the bovine or cattle tuberculosis.

The South African investigators believe this cannot be pure coincidence. In support of the view that there is a relationship between ability to resist tuberculosis and ability to manufacture vitamin C in the body are many reports showing that tuberculosis patients use

more vitamin C than normal persons. No one knows just why this is so, but tests of the amount of vitamin C in the blood of such patients have shown it.

Patients with other infectious diseases besides tuberculosis also seem to use more vitamin C than normal. Some authorities believe that this may be because of the fever in these sicknesses which speeds up the body processes known as metabolism. This would include a speeding up of use of vitamin C.

Science News Letter, July 20, 1940

BOTANY—PHOTOGRAPHY

Plant Growth Shown Fast With Amateur Movie Outfit

DEVELOPMENT of an inexpensive electrical movie outfit which will permit amateurs to record the growth of plants on 8 mm. film, so that the growth of days and weeks can be animated on a 30-foot roll of film may lead to important discoveries in plant growth. The device, perfected by Wesley C. Casson, chemical engineer, of suburban Birmingham, Mich., permits running off the reel in two and a half minutes growth which may have covered months.

The equipment consists of an eight-millimeter motion picture camera, and an electric motor drive, controlled by a timing clock electrically driven. Individual frames can be exposed at intervals ranging from 15 minutes to two days apart, without any attention on the part of the operator. A battery of photoflood lights can be connected for continuing the sequence of pictures through the night or in overcast weather.

The entire unit is weatherproofed and may be left in position in the garden. A completed picture when screened shows