



## **FACTS ABOUT ELECTROCONVULSIVE THERAPY**

### ***What is Electroconvulsive Therapy?***

Electroconvulsive therapy (ECT) is a method for treating mental illness by causing medically controlled convulsive seizures. The patient is given an intravenous anesthesia, followed by medication which relaxes the muscles in the body. The physician then applies an electric current to the scalp, producing a mild seizure or convulsion, which consists only of a minimal twitching of the muscles. What is critical is the production of changes in the firing pattern of the neurons in the central nervous system. The outward signs which we observe (e.g. convulsive movements) are secondary and are not related to the therapeutic effect. The patient remains asleep during the treatment and for several minutes afterwards. Then, he / she gradually awakens and is usually up and about in 15 to 30 minutes after the treatment has ended. With modern techniques, ECT is a rapid and painless procedure which does not involve shock of any kind. Therapeutic seizures can also be induced by giving the patient inhalations of an ether-like gas after he is asleep, or by injecting a chemical convulsant agent intravenously. Seizures induced by these methods have the same therapeutic effect as those given by electrical means and the same total number of treatments is required. As a convulsion is the common denominator, the general term "convulsive therapy" is used to describe the three methods.

### ***What patients need ECT?***

ECT is used for patients with psychoses or severe neuroses who require intensive treatment, usually in a hospital. The depressed phase of bipolar disorder is the main indication for ECT. This is a severe depression characterized by intractable insomnia, loss of appetite and weight and unreasonable feelings of self-blame, worthlessness, and hopelessness. These patients may feel very slowed down and inactive, or they may be restless, agitated and indecisive. They may also have a strong urge to commit suicide. ECT is the most effective method for attaining rapid remission of the symptoms for such patients. Improvement is rapid and the symptomatic relief quite complete, usually with only 6 to 8 treatments.

Acute (sudden onset) schizophrenia is felt by some clinicians to be another indication for ECT. Patients with this illness may act bizarrely and speak in a disorganized fashion, which is difficult to follow. They may be disturbed by hearing voices when nobody is there or they may see things that aren't there (hallucinations). Sometimes they believe that they are being persecuted or influenced by unknown powers or agencies (delusions). Such patients require more ECT than depressed patients and a full course of treatment usually requires 20 applications.

Some patients who have recurrent or relapsing illnesses may get full relief from a course of ECT; yet fall ill again in a few months. For these patients, maintenance ECT is sometimes recommended, in which a biweekly or monthly “booster” treatment is given. This method may permit many patients who in the past required frequent periods of hospitalization to function at home or at work. Maintenance ECT is an outpatient treatment and if given early in the day does not prevent the patient from going to work an hour or two afterwards.

### ***How does ECT work?***

As with other psychiatric treatment, it is not known how ECT works. Early attempts to explain its mechanism of action on psychological grounds were unsatisfactory and statements that patients improved because of memory loss or fear of treatment have not been supported by research.

The common denominator of the convulsive therapies is the induction of a convulsive seizure, whether by electrical, gas, or chemical means and it is now accepted that the seizure is the therapeutic agent. Much recent investigation into the causation of mental illness has centered on changes in brain chemistry, particularly in depression and in schizophrenia. Studies with animals have shown that convulsions produce changes in brain chemistry and it is theorized that such changes occur in patients receiving ECT. Present research in this area is directed toward investigating the possibility that ECT acts to restore chemical balance in the nervous systems of mentally ill patients.

### ***Is there any danger with ECT?***

In all medical procedures carried out under general anesthesia, there is an element of danger. When the customary precautions are observed, ECT is a very safe method of treatment. In older patients or in patients with medical illnesses such as high blood pressure or heart disease. Special laboratory tests or examinations are conducted before treatment and many such patients can be treated without difficulty. ECT has been given safely to pregnant women, to patients in their nineties and even to patients who had recently undergone heart surgery. Under such circumstances, well-trained personnel in a general hospital setting is required.

The most common side effects of ECT are confusion and temporary memory loss (amnesia), seen most obviously immediately after treatment. These memory changes include forgetting some recent events and a tendency to forget day-to-day matters. Amnesia does not always occur with ECT but when present it increases as more treatments are given. These memory changes disappear slowly over the weeks following ECT. Memory is usually fully restored by 1 or 2 months after ECT. Much research has been done over the past 35 years to investigate the possibility of permanent memory changes occurring with ECT. Research now suggests that such changes do not occur regardless of the number of treatments given. (Although many patients assume that the purpose of ECT is to “make them forget” unpleasant things, in actuality memory loss is irrelevant for the beneficial effects of ECT).

A recent development of ECT research is the modification known as “unilateral” ECT. Unilateral ECT means applying the electrical current to the non-dominant hemisphere of the brain. The dominant hemisphere not only determines what “handedness” a person assumes (right or left) but also is that side of the brain which is most concerned with speech, memory and other intellectual functions. This method does not result in the same confusion and memory loss seen with standard “bilateral” ECT; it is particularly useful in older patients and those who must continue working during a course of treatment. For some patients, unilateral ECT can replace bilateral ECT but in other patients bilateral ECT works faster or more thoroughly. Research of this type is continuing and is currently supported by grants from the National Institute of Mental Health.

### ***Why are some people afraid of ECT?***

The myth of “shock” therapy prejudices people against the idea of ECT even though the treatment does not produce electrical or an emotional shock. ECT was introduced in this county as a psychiatric treatment in 1939 and was given for many years without anesthesia, often within view of other patients. Without anesthesia and muscle relaxers the convulsive seizure is powerful and several attendants were needed to restrain the patient during treatment and to prevent fractures (which occurred frequently in spite of precautions). The whole aura of treatment was frightening to patients who observed it, as well as non-medical observers who later described the treatment in fictional works and in the press. This description of ECT of course no longer applies, but the unfortunate image of “shock” treatment lingers on in the popular press and prevents some patients from accepting ECT when it would be of benefit to them.