Ontario Shores
Centre for Mental Health Sciences

Electroconvulsive Therapy (ECT)

What is Electroconvulsive Therapy?

Electroconvulsive Therapy (ECT; called "shock treatment" by some) is an extremely safe and effective medical treatment for certain psychiatric disorders. With this treatment, a small amount of electricity is applied to the scalp and this produces a seizure in the brain. This procedure is painless because the patient is asleep under general anesthesia.

Who is Treated with ECT?

ECT has been used for over 60 years. ECT is most commonly given when patients have severe depressive illness, mania, or some forms of schizophrenia. Frequently, ECT is given when patients have not responded to other treatments, when other treatments appear to be less safe or difficult to tolerate, when patients have responded well to ECT in the past, or when psychiatric or medical considerations make it particularly important.

Who Administers ECT?

A treatment team gives ECT. The team consists of a psychiatrist, an anesthesiologist and nurses.

How is ECT Given?

Before ECT is administered, the patient's medical condition is carefully addressed. This includes a complete medical history, physical examination and medical tests as required. The treatments are usually given three times per week in the morning on Monday, Wednesday and Friday.

Before each treatment, the patient should not eat or drink anything after midnight the night before.

When the patient comes to the ECT treatment room, an intravenous line is started. Sensors for recording EEG (electroencephalogram, a measure of brain activity) are placed on the head. Other sensors are placed on the chest for monitoring ECG (electrocardiogram). A cuff is

wrapped around an arm for monitoring blood pressure. When everything is connected and in order, an anesthetic medication is injected through the intravenous line that will cause the patient to sleep for 5 to 10 minutes. Once the patient falls asleep, a muscle relaxant (succinylcholine) is injected. This prevents movement and during the seizure there are only minimal contractions of the muscles.

When the patient is completely asleep and the muscles are well relaxed, the treatment is given. A brief electrical charge is applied to the electrodes on the scalp. This stimulates the brain and produces the seizure that lasts for about 1 minute. Throughout the procedure, the patient receives oxygen through a mask. This continues until the patient resumes breathing on his or her own. When the treatment is completed, the patient is taken to a recovery area for monitoring by trained staff. Usually within 30 to 60 minutes the patient can leave the recovery area.

How Many Treatments Are Needed?

ECT is given as a course of treatments. The total number needed to successfully treat psychiatric disturbances varies from patient to patient. For depression the typical range is up to 12 treatments, but some patients may require fewer and some patients may require more treatments. Usually 12 treatments are required.

Is ECT Curative?

ECT is extremely effective in providing relief from psychiatric symptoms. However, permanent cures for psychiatric illness are rare, regardless of the treatment given. To prevent relapse following ECT, most patients require further treatments with medications or with ECT. If ECT is used to protect against relapse, it is usually administered to outpatients on a weekly to monthly basis.

How Safe is ECT?

It is estimated that death associated with ECT occurs in one of 10,000 patients. This rate may be higher in patients with severe medical conditions, ECT appears to have less risk of death or serious medical complications than a number of the medications used to treat psychiatric conditions. Because of this strong safety record, ECT is often recommended for patients with

serious medical conditions. With modern anesthesia, fractures and dental complications are very rare.

What are the Common Side Effects of ECT?

The patient will experience some confusion on awakening following the treatment. This is partly due to the anesthesia and partly due to the treatment. The confusion typically clears within 1 hour. Some patients have headaches following the treatment. This is usually relieved by Tylenol (acetaminophen). Other side effects, such as nausea, last for a few hours at most and are relatively uncommon. In patients with heart disease, there is an increased risk of cardiac complications. Cardiac monitoring and other precautions, including the use of additional medications if required, help to ensure a safe treatment.

The side effect of ECT that has received the most attention is memory loss. ECT results in two types of memory loss. The first involves rapid forgetting of new information for example, shortly following the treatment, patients may have difficulty remembering conversations or things they have recently read. This type of memory loss is short-lived and has not been shown to persist for more than a few weeks following the completion of ECT. The second type of memory loss concerns events from the past. Some patients will have gaps in their memory for events that occurred in the weeks to months and, less commonly, years prior to the treatment course. This memory loss also reverses following the completion of ECT. However, permanent gaps in memory may exist for some events, particularly those that occurred close in time to the treatment course. This memory loss also reverses following the completion of ECT. However, permanent gaps in memory may exist for some events, particularly those that occurred close in time to the treatment. As with any treatment, patients differ in the etent to which they experience side effects, and more extensive memory loss has been reported by a minority of individuals. It is known that the effects on memory are not necessary to obtain the benefits of ECT.

Many psychiatric illnesses result in impairment of attention and concentration. Consequently, when the psychiatric disturbance improves after ECT, there is often improvement in these aspects of thinking. Shortly after ECT, most patients show improved scores on tests of intelligence, attention and learning.

How Does ECT Work?

Like many other treatments in medicine, the exact process that underlies the effectiveness of ECT is uncertain. It is known that the benefits of ECT depend on producing a seizure in the brain and on technical factors in how the seizure is produces. Biological changes that result from the seizure are critical to the effectiveness. Most investigations believe that specific changes in brain chemistry produced by ECT are the key to resotring normal function. Considerable research is being conducted to isolate the critical biochemical processes.