

Electroconvulsive Therapy (ECT)

What is ECT?

Electroconvulsive Therapy (ECT) is a type of brain stimulation therapy used to treat a variety of mental illnesses. ECT is used most commonly to treat severe depression, especially when other treatments have not worked. ECT was developed in 1938 and has changed a great deal since that time.

ECT works by passing electrical currents through the brain. The electrical currents cause changes in brain chemistry that relieve symptoms of certain mental illnesses. People who undergo ECT do not feel pain or discomfort during the procedure. It can be used safely by people who are pregnant, elderly or living with a variety of medical conditions. Research has shown that ECT can be one of the most effective treatments available.

What is ECT used to treat?

ECT is most commonly used to treat the following mental illnesses:

- Severe depression. Particularly when symptoms include psychosis, suicidal ideation or a refusal to eat.
- Long-term depression that does not improve with medication or other treatments.
- Schizophrenia when symptoms include psychosis, suicidal ideation, a desire to harm someone else or refusal to eat.
- Bipolar disorder when symptoms include severe mania. Signs of mania include impaired decision making, impulsive or risky behaviors, substance abuse and psychosis.
- Schizophrenia and some other psychiatric disorders where catatonia is a symptom. Catatonia is characterized by lack of movement or strange movements and difficulty with speech.

How does ECT work?

Chemical aspects of brain function are changed during and after ECT therapy. Chemical changes build upon each other resulting in relief from symptoms.

What is the procedure?

Before ECT treatment begins, the person undergoes a physical exam to determine if they are healthy enough to have the treatment. ECT is performed under general anesthesia, which puts the person to sleep. People also receive muscle relaxant medication, which keeps them still. The person may receive other medications as well if they have certain health conditions. An anesthesiologist monitors the person's vitals throughout the procedure.

Electrode pads are placed on the person's head at precise locations. They are either placed on both sides of the brain, called bilateral ECT, or on one side, called unilateral ECT. Once the anesthetic and muscle relaxant take effect, the doctor presses a button on the ECT machine. This

causes a short, controlled set of electrical currents to pass through the electrodes into the person's brain. This lasts only a few seconds. An electroencephalogram (EEG) records the person's brain activity. The EEG will show a sudden increase in activity as soon as the treatment begins.

After the treatment the person is taken to a recovery area and monitored. The anesthetic and muscle relaxant begin to wear off five to ten minutes after the treatment is complete. People who undergo ECT will often be prescribed an antidepressant or other mood-stabilizing medication after the treatment.

How long does ECT treatment last?

ECT treatment usually requires three sessions per week for two to four weeks. About six to twelve treatments total. The number of treatments a person needs depends on how serious their symptoms are and how quickly they improve. People usually start to feel their symptoms improve after four to eight treatments though it can take longer. The benefits of ECT treatment can last from several weeks to several years.

Follow-up or "maintenance" ECT sessions are often needed after the first round of treatment to keep symptoms from coming back. Maintenance ECT could be as much as one session per week or as little as one session every few months. How much, if any, maintenance ECT a person needs will depend on their situation.

How effective is ECT?

Studies show that ECT is effective 70-90% of the time (NIMH 2008). ECT is most effective with multiple treatments and for people who receive the full course of ECT treatment. ECT treatment may bring full recovery, partial recovery or, in some cases, no recovery at all.

ECT has an especially high success rate when used to treat severe depression. According to the American Psychiatric Association, 80% of people with severe depression saw their symptoms improve significantly after ECT. This is 20% higher than the average success rate for most antidepressant medications.

What are the side effects and risks?

The latest version of ECT was introduced seven years ago by the Columbia Medical School. This new method has significantly lowered the risk associated with ECT. However, there are several side-effects that can result from ECT treatment.

Confusion may occur immediately after ECT treatment. Patients generally recover from confusion within 30 minutes to an hour. Short term memory loss can occur as well. However, current practices dramatically decrease the amount of memory loss associated with ECT. After a full series of ECT, the majority of patients experience either very mild memory loss or no memory loss at all. Research has found that memory problems are more associated with bilateral ECT. Long term memory loss can be a problem, especially among patients who received bilateral ECT.

There are also several, usually mild, physical side effects that can occur after receiving ECT. These can include nausea, vomiting, headache, jaw pain, muscle ache or muscle spasm. These

side effects are quite common immediately after an ECT session but can usually be treated with prescribed medication. During ECT a person's heart rate and blood pressure increase. However, this is closely monitored and usually does not pose any danger.

How has ECT changed over time?

- Today, electricity is administered as an extremely quick pulse instead of a steady stream.
- Less electricity is used in ECT therapy today.
- People receive far fewer ECT treatments today.
- People recover from the confusion caused by ECT much more quickly today (usually within an hour).
- People are now monitored much more closely both during and after ECT treatment.
- People are now placed under general anesthesia for ECT treatment.
- People now receive muscle relaxants for ECT treatment.
- The medicine, software and procedures used in ECT treatment have greatly improved since it was first introduced.

Myths about ECT:

Myth: ECT does not work.

Fact: ECT is considered one of the safest and most effective medical treatments for severe depression and can improve the symptoms of several other mental illnesses.

Myth: ECT is painful.

Fact: ECT is not painful because the person is given a general anesthetic and muscle relaxant before the treatment. If a person has a headache or any discomfort after the procedure, medication is prescribed.

Myth: ECT is dangerous.

Fact: ECT is no more dangerous than any other medical procedure that uses a general anesthetic, and ECT has a low risk of complications.

Myth: ECT erases a person's memory.

Fact: ECT can disrupt a person's short term memory. However, this is usually only temporary. Memory will return to normal approximately one to three months after treatment. Some people have even reported improved memory following ECT because it can relieve the amnesia sometimes caused by severe depression. Although rare, some people (mostly people who have received bilateral ECT) have reported long term memory loss.

Myth: ECT can cause brain damage.

Fact: There is no evidence that ECT causes irreversible damage to the brain.

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