Electroconvulsive Therapy (ECT)

Myths and Facts

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Electroconvulsive Therapy (ECT)

Myths and Facts

ECT

- ECT is among the oldest and most effective treatments available for depression.
- With ECT, electrodes are placed on the patient's scalp and a finely controlled electric current is applied while the patient is under general anesthesia.
- The current causes a brief seizure in the brain.
- ECT is one of the fastest ways to relieve symptoms in severely depressed or suicidal patients.
- It's also very effective for patients who suffer from mania or a number of other mental illnesses.

How Is ECT Performed?

- Prior to ECT treatment, a patient is given a muscle relaxant and is put to sleep with a GA.
- Electrodes are placed on the patient's scalp and a finely controlled electric current is applied. This current causes a brief seizure in the brain.
- Because the muscles are relaxed, the visible effects of the seizure will usually be limited to slight movement of the hands and feet. Patients are carefully monitored during the treatment.
- The patient awakens minutes later, does not remember the treatment or events surrounding it, and is often confused.
- The confusion typically lasts for only a short period of time. ECT is usually given up to three times a week for a total of two to four weeks.

Mechanism of Action

- The mechanism of action of ECT is not fully known. ECT affects multiple central nervous system components, including hormones, neuropeptides, neurotrophic factors, and neurotransmitters.
- The induction of a bilateral generalized seizure is required for both the beneficial and adverse effects of ECT.
- An increase in gamma-aminobutyric acid (GABA) transmission and receptor antagonism has been observed, which raises the seizure threshold during ECT.
- Nearly every neurotransmitter system is affected by ECT, including beta-adrenergic, serotonin, muscarinic, cholinergic, and dopaminergic systems.
- Brain-derived neurotrophic factor (BDNF), second-messenger systems, and catechol-O-methyltransferase (COMT) polymorphisms may play a role in ECT.

ECT is used in following

- Febrile catatonia
- Malignant neuroleptic syndrome
- Severe depressive episode*
- Schizoaffective psychosis*
- Schizophrenia*
- In case of life-threatening or intolerable side effects of psychopharmacological treatments

* with suicidality which can not be handled even on protected wards, psychotic symptoms, depressive stupor, with positive symptoms or acute danger of self-harm or harm of others, or with severe reduction in oral intake.

Dialogues Clin Neurosci. 2008 Mar; 10(1): 105–117.

ECT – also used in the following

- Medication treatment failures in:
  - Depression
  - Schizoaffective psychosis
  - Schizophrenia
  - Mania
  - Depression or psychotic symptoms in case of organic diseases

Dialogues Clin Neurosci. 2008 Mar; 10(1): 105–117.

ECT can also be used in the following

- Treatment-resistant obsessive compulsive disorder (OCD)
- Treatment-resistant dyskinesias
- Treatment-resistant Gilles de la Tourette syndrome
- Treatment resistant epilepsy
- Parkinson's disease with severe psychiatric comorbidity

I have used it in following conditions:

- Resistant conversion symptoms
- Disruptive behaviour symptoms in mentally retarded individual
- B.P.S.D

Dialogues Clin Neurosci. 2008 Mar; 10(1): 105–117.

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Number of treatments

- There is no standard number of treatments for an acute ECT course and no way to predict how many treatments a particular patient will need.
- Most patients remit with 6 to 12 treatments, but some require only three while others require 20 or more.
- Acute ECT should last until the patient remits, reaches an improvement plateau, or develops limiting adverse effects.
- It is becoming more common to taper the frequency of ECT treatments, rather than abruptly stop a course.

Treatment frequency

- The frequency of treatments varies by country and the clinical urgency.
- Standard practice in the United States is to give ECT three times per week on a Monday-Wednesday- Friday schedule.
- The routine in many other countries is twice a week, particularly for elderly patients.
- Urgently ill patients (eg, catatonic or severely malnourished) may be given daily bilateral ECT until some improvement is evident

ECT and drugs

- Many psychotropic medications may be continued during a course of ECT for their synergistic effect without compromising safety, including antidepressants, antipsychotics, and lithium.
- Morning doses on the day of ECT are given after the patient has recovered from that day's procedure.
- Anticonvulsants and benzodiazepines often interfere with ECT and may need to be tapered and discontinued.
- Most cardiac, antihypertensive, and anti-reflux medications should be taken with a small sip of water approximately two hours before each ECT treatment.

ECT and mortality

- The mortality rate of ECT is at most 2 to 4 deaths per 100,000 treatments, making it one of the safest procedures performed under general anesthesia.
- Mortality is mostly related to cardiopulmonary events.
- Other adverse medical effects include aspiration pneumonia, fracture, dental and tongue injuries, headache, and nausea.

ECT and adverse cognitive effects

- Many patients report some adverse cognitive effects during and after a course of ECT.
- They are reversible
- Spacing of ECT's
- No medication required

Misconceptions

- Although ECT has been used since the 1940s and 1950s, it remains misunderstood by many.
- Many of the procedure's risks and side effects are related to the misuse of equipment, incorrect administration, or improperly trained staff.
- It is also a misconception that ECT is used as a "quick fix" in place of long-term therapy or hospitalization.
- Nor is it correct to believe that the patient is painfully "shocked" out of the depression.
- Unfavorable news reports and media coverage have contributed to the controversy surrounding this treatment.

Our Responsibility

- As evidence supporting the use of electroconvulsive therapy (ECT) to treat patients with depression and other psychiatric illnesses continues to grow, myths about this treatment persist.
- In light of these myths, patients might be reluctant to receive ECT.
- As clinicians, we need to educate others about the safety and effectiveness of this treatment.

Myths and Facts

It is a barbaric treatment

- ECT is conducted in a controlled medical environment, either during a hospitalization or as an outpatient procedure, by a team consisting of a psychiatrist, anesthesiologist, and nurse.
- Patients receive a short-acting intravenous anesthetic to ensure that they are unaware of the procedure, and a muscle relaxant to help prevent physical injury.
- Patients remain relaxed, are unaware that they are having a seizure, and experience no pain.
- Following ECT, the patient is taken to a recovery area, where he or she is closely monitored as the medications wear off.

It causes brain damage

- Studies using MRI to look at the brain before and after ECT have found no evidence that ECT causes negative changes in the brain's structural anatomy.[1]
- To the contrary, there is evidence that there is neuroplasticity in the brain in response to ECT, and the neurotrophin brain-derived neurotrophic factor also may be increased.[2,3]

1. Am J Psychiatry. 1990; 147(3):371-372.
2. Eur Neuropsychopharmacol. 2016;26(3)506-517.
3. Eur Neuropsychopharmacol. 2006;16(8):620-624.

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It causes permanent memory loss.

- ECT can result in both anterograde and retrograde memory impairment; however, anterograde amnesia typically lasts only days to weeks.
- Retrograde amnesia is much less common, but when it occurs, it tends to be loss of memory of events that took place in the weeks leading up to and during treatment.
- Using an ultrabrief (as opposed to standard brief) pulse, as well as right unilateral (as opposed to bilateral) electrode placement, substantially reduces the risk of cognitive and memory adverse effects.

Brain Stimul. 2008;1(2):71-83.

It is a treatment of last resort.

- Typically, ECT is used for patients who have not responded to other interventions.
- However, ECT can be used as a first-line treatment for patients if a rapid or higher likelihood of response is necessary, such as when a patient is suicidal, catatonic, or malnourished as a result of severe depression.

American Psychiatric Association, 2nd edition. Washington, DC: 2001.

FDA Report

There is overwhelming evidence for the efficacy and safety of an acute course of ECT for the treatment of a severe major depressive episode, as reflected by the recent FDA advisory panel recommendation to reclassify ECT devices from Class III to the lower risk category Class II.

It only works for depression.

- Evidence shows ECT is efficacious for several psychiatric conditions, not just unipolar depressive disorder.
- It can effectively treat bipolar depression, mania, catatonia, and acute psychosis associated with schizophrenia and schizoaffective disorders.
- ECT also has been demonstrated to be effective in acute and maintenance treatment of Parkinson's disease.

J Clin Psychiatry. 2015;76(7): 949-957.
Innov Clin Neurosci. 2015;12(9-10):25-28.

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It is not safe.

- Death associated with ECT is extremely rare.
- A recent analysis estimated that the rate of ECT-related mortality is 2.1 deaths per 100,000 treatments.
- In comparison, the mortality rate of general anesthesia used during surgery has been reported as 3.4 deaths per 100,000 procedures.
- Evidence also suggests ECT can be safely administered to patients who are pregnant.

Acta Psychiatr Scand. 2017;135(5):388-397.
J ECT. 2017;33(2): 81-88.

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It cannot be given to patients with epilepsy.

- There are no absolute contraindications to using ECT for these patients.
- Most patients with epilepsy can be successfully treated with ECT without requiring an adjustment to the dose of their antiepileptic medications.

Epilepsy Behav. 2006; 9(2):355-359.

It will change one's personality.

- ECT has not been found to cause any alterations in personality.
- Patients who are treated with ECT may describe feeling more like themselves once their chronic symptoms of depression have improved.
- However, ECT has not been shown to effectively treat the symptoms or underlying illness of personality disorders, and it may not be an effective treatment for depression associated with borderline personality disorder.

Am J Psychiatry. 2004; 161(11):2073-2080.

Its success rate is low.

- ECT has the highest response and remission rates of any form of treatment used for depression.
- An estimated 70% to 90% of patients with depression who are treated with ECT show improvement.

J Clin Psychiatry. 2014;75(7):777.

It is a permanent cure.

- ECT is not likely a permanent solution for severe depression.
- The likelihood of relapse in patients with severe depression who are helped by ECT can be reduced by receiving ongoing antidepressant treatment, and some patients may require continuation or maintenance ECT.
- MHA 2017 – ECT for minor – ECT in emergency
- Cost

Neuropsychopharmacology. 2013;38(12): 2467-2474.

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