

FAST FACTS AND CONCEPTS #428
ELECTROCONVULSIVE THERAPY (ECT) FOR PATIENTS WITH SERIOUS MEDICAL ILLNESS
Jordan Stone, MD

Background: Treatment of mood disorders such as major depressive disorder (MDD) can be clinically challenging for patients with life-limiting illnesses. Delayed responses and marginal efficacy of many psychiatric medications pose an obstacle in alleviating suffering. Electroconvulsive therapy (ECT), a method of inducing a generalized seizure via application of electrical current to the brain, is one of the most effective treatments for MDD. Despite a paucity of evidence for use in patients with serious illness, ECT may play a select role in this population (1,2). This *Fast Fact* offers a primer on ECT for clinicians who commonly care for patients with severe medical illness and comorbid psychiatric disorders.

Indications: MDD, bipolar depression, catatonia, and refractory psychosis are the most common indications for ECT (3). There is also supporting evidence for neuroleptic malignant syndrome, status epilepticus, and Parkinson disease (3). Treatment responses are prompt compared with other standard therapies: 50% show MDD response in the first week and 50% exhibit MDD remission within 2 weeks from ECT (4). However, data are limited for patients with concurrent medical conditions, let alone life-limiting illness. Any consideration of ECT for patients with a serious illness should include a transparent acknowledgement of these limitations in the evidence. If the patient has previously responded to ECT, if symptoms are severe (e.g., high suicide risk, dangerous lack of self-care from mental illness), and/or if standard medication therapy are ineffective or not acceptable, then a psychiatry referral for evaluation for ECT should be considered (1,2). Based on case reports and practical considerations, patients with prognosis estimated in months with a fair functional status stand to gain the most quality of life benefit from ECT. Short courses (e.g., three treatments within a week) or a single treatment can be considered in cases with a prognosis of weeks.

Contraindications: While there are no absolute contraindications, the application of electrical current, production of a motor seizure, and the resultant physiological effects (e.g. transient bradycardia from vagal stimulation with subsequent sympathetic compensation leading to tachycardia) could negatively affect those with intracranial lesions; increased intracranial pressure; skull defects such as craniectomy; a recent intracranial hemorrhage or stroke; unstable angina or a recent myocardial infarction; decompensated heart failure; unstable cardiac arrhythmias; and/or unstable spinal fractures (3,5). These limitations unfortunately limit the utility of ECT for many patients with life-limiting illnesses.

ECT Procedure: An anesthetist induces unconsciousness using a short-acting IV agent (e.g., methohexital, propofol) followed by a muscle relaxer (often succinylcholine). Bag mask ventilation is utilized while continuous EKG and pulse oximetry is monitored – intubation is usually not needed. Once unconscious and paralyzed, the psychiatrist places electrodes on the patient’s scalp and current are delivered. Seizure activity is monitored via motor activity or EEG; most seizures last 20-60 seconds. After the seizure ceases or is aborted, the patient is ventilated until the anesthetic wears off, then monitored until fully awake (1,3). Induction usually involves 2-3 treatments per week, then is tapered based on treatment response. While usual treatment courses span several weeks to months, treatments can be modified for patients with limited prognoses; even single treatments have been shown in case reports to have antidepressant effects or help to lyse catatonia within a day after treatment (2,3).

Adverse Effects: Encephalopathy can occur immediately after treatment and is more common in the elderly. Fatigue, headache, and myalgias are common short-term (days) side effects. Short-term memory and cognitive impairment are common long-term side effects (1,3).

Logistical and pragmatic challenges: Regulations on ECT vary by state and country. Some are onerous, especially if a patient cannot consent him/herself to treatment and require time-intensive provisions such as obtaining emergency guardianship. These regulations can make it incompatible for some patients with limited prognoses (6,7). Many providers may not consider ECT as a treatment for medically ill patients, and ECT facilities or psychiatrists may not be experienced or equipped to treat

medically complex patients. Hence, many clinicians consider ECT a “treatment of last resort” despite its known effectiveness and calls for broader use (8). For patients with do not resuscitate orders, it is vital to collaborate closely with the psychiatrist and anesthesiologist so they can negotiate transparent discussions with the patient on how to navigate their wishes during the procedure.

Cost: For patients receiving hospice care in the US, cost can be a significant barrier. ECT includes procedural billing for both the psychiatrist and anesthesiologist which can be several hundred to several thousand dollars per treatment. Regulations are unclear regarding ECT reimbursement for patients on hospice. With strong documentation and close collaboration with hospice social work, ECT could ostensibly be covered as a necessary treatment unrelated to their hospice diagnosis.

Summary: ECT is an efficacious treatment of psychiatric disorders such as MDD or catatonia. Though substantial gaps exist in the medical literature about its use for seriously ill patients, it can be considered for those who have responded to ECT previously.

References

1. Rasmussen KG, Richardson JW. Electroconvulsive therapy in palliative care. *Am J Hosp Palliat Care*. 2011;28(5):375-377.
2. Mulder ME, Verwey B, van Waarde JA. Electroconvulsive therapy in a terminally ill patient: when every day of improvement counts. *J ECT*. 2012;28(1):52-53.
3. Mankad MV, ed. *Clinical Manual of Electroconvulsive Therapy*. 1st ed. American Psychiatric Pub; 2010.
4. Husain MM, Rush AJ, Fink M, et al. Speed of response and remission in major depressive disorder with acute electroconvulsive therapy (ECT): a Consortium for Research in ECT (CORE) report. *J Clin Psychiatry*. 2004;65(4):485-491.
5. Amanullah S, Delva N, McRae H, Campbell LA, Cole J. Electroconvulsive therapy in patients with skull defects or metallic implants: a review of the literature and case report. *Prim Care Companion CNS Disord*. 2012;14(2).
6. Livingston R, Wu C, Mu K, Coffey MJ. Regulation of Electroconvulsive Therapy: A Systematic Review of US State Laws. *J ECT*. 2018;34(1):60-68.
7. Harris V. Electroconvulsive therapy: administrative codes, legislation, and professional recommendations. *J Am Acad Psychiatry Law*. 2006;34(3):406-411.
8. Sienaert P. What we have learned about electroconvulsive therapy and its relevance for the practising psychiatrist. *Can J Psychiatry*. 2011;56(1):5-12.

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Author's Affiliations: Pennsylvania Hospital, Philadelphia, PA

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