

Successful Electroconvulsive Therapy for Depression in a Patient With Recent History of Takotsubo Cardiomyopathy

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Electroconvulsive therapy (ECT) is among the most effective treatments for severe major depressive disorder, widely considered to be a gold standard intervention in certain clinical contexts.¹ A known adverse effect of ECT is Takotsubo cardiomyopathy (TC),² which is a rare syndrome typically consisting of reversible left ventricular dysfunction³ that may mimic acute coronary syndrome, but without angiographic evidence of obstructive coronary disease. It can lead to severe medical complications, including death.³ TC is a somewhat poorly understood syndrome that may arise due to catecholamine excess.³ Potential precipitants for TC include preexisting psychiatric illness, acute emotional or physical stressors, use of certain medications such as serotonin-norepinephrine reuptake inhibitors and chemotherapy,⁴ and thyroid or other endocrine disorders,⁵ as well as ECT.³ Indeed, a literature review noted at least 16 cases of patients who developed TC after ECT, the majority of whom were females with depression.²

Case Report

We present the case of a 63-year-old woman with a history of chronic, intermittent depressive episodes. She was admitted to the inpatient psychiatric services of the S.M.B.D. Jewish General Hospital, Montreal, Canada, in March 2022, following a suicide attempt by self-inflicted stab wounds to the chest. This admission was her third for depression since January 2022 and her second severe suicide attempt in the same period. She was diagnosed with major

depressive disorder, recurrent, as per the *DSM-5*.

Her inpatient medical chart from October 2021 revealed a several-week history of irritability, talkativeness, decreased sleep, and increased spending. At that time, she was diagnosed with a manic episode possibly secondary to prednisone, which had been prescribed for rheumatoid arthritis. A medical workup revealed pulmonary edema on chest X-ray and elevations in both cardiac troponin and B-type natriuretic peptide at 782 mg/L and 1,218 pg/mL, respectively. A transthoracic echocardiogram (TTE) revealed a left ventricular ejection fraction (LVEF) of 25%–30%, and a coronary angiogram showed a LVEF of 35%, Takotsubo motif. She was given a diagnosis of TC. A repeat TTE 4 months later in February 2022 demonstrated a normalized LVEF of 50%–55%.

Upon admission to our unit, ECT was considered but not pursued given her recent history of TC. Instead, she was treated with psychopharmacotherapy, daily behavioral activation, and supportive therapy. Despite these treatments, her clinical condition progressively worsened between March and June 2022. She became mute and began to refuse to get out of bed and to eat or drink, resulting in weight loss, dehydration, and 2 falls. Given the clinical urgency, ECT was reconsidered, and medical clearance was obtained from general internal medicine, cardiology, and anesthesia. As precautionary measures, the first ECT was carried out in the operating room with the use of preprocedural

esmolol (a beta-blocker). The latter was used to mitigate the adrenergic surge that occurs during the clonic phase of the ECT-induced seizure as an attempt to minimize the risk of TC. The subsequent 4 treatments took place in the usual perioperative area with preprocedural metoprolol, also a beta-blocker. All bilateral ECT treatments were carried out using the usual protocol in our hospital of propofol and succinylcholine. The patient suffered no adverse complications from 5 ECT treatments, and her depressive symptoms gradually improved. She described feeling like her usual self again and began smiling. She reconnected with her sister and actively participated in her discharge planning. Given this positive response, and in consideration of the risks associated with TC, further ECT treatments were not pursued (though were available as necessary).

Discussion

While there are multiple case reports in the literature of ECT causing TC,² in this case ECT was safely and effectively used for the treatment of depression in a patient with a recent history of TC, which was not induced by ECT. Clinicians should be aware of TC as a rare complication of ECT, which should nevertheless be considered a possibly life-changing treatment option with the use of precautions.

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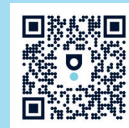
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