



## Case Report

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# Asystole Following Electroconvulsive Therapy in a Male Patient with Bipolar Disorder: A Case Report

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**Running Title** Asystole Following Electroconvulsive Therapy in Bipolar Disorders



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## ABSTRACT

Electroconvulsive therapy (ECT) is known as a treatment method for psychological disorders. This method, like any other treatment, has disadvantages that could threaten the patient's life. During the process, some changes occur in the autonomic systems of the body. The aim of this study is to introduce a rare case of asystole during electroconvulsive therapy. The patient was a 48-year-old man with a history of bipolar disorder and a candidate for ECT. There were no problems in cardiac examinations. In the postictal phase of the seizure, the heart rate was not detectable. Cardiopulmonary resuscitation was started immediately with chest compressions, and airway management was performed by the anesthesiologist. The patient's cardiac rhythm converted to a sinus rhythm following five minutes of chest compressions. The ECG wave appeared, and the pulse oximeter was able to show SpO<sub>2</sub> and the heart rate. Meanwhile, the patient's airway was secured, and he was delivered to recovery with a blood pressure of 119.66 mm Hg and a heart rate of 105 beats/min. By retrieving the patient's consciousness and hemodynamic stability, he was transferred to the ICU for treatment and diagnostic procedures.

## Introduction

Electroconvulsive therapy (ECT) is known as a treatment method for psychological disorders. A wide range of patients with mood disorders (depression and bipolar), drug-resistant schizophrenia, and critical neurological conditions benefit from this method [1]. Research shows that the mechanism of this method is related to an increase in neural growth factors and also enlargement of the hippocampus [2]. Today, ECT is known as a new treatment with gentle side effects, which is performed

under anesthesia and the administration of muscle relaxants [3].

This method, like any other treatment, has disadvantages that could threaten the patient's life. During the process, some changes occur in the autonomic systems of the body. Usually, the autonomic activity caused by electrical stimulation leads to an initial parasympathetic response, which is immediately followed by significant sympathetic activity. Due to the attenuation of vagal effect, tachycardia and a secondary increase in blood pressure are observed. In

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requirement for structured institutional preparedness. Every ECT unit must be equipped and staffed to function as a high-acuity procedural area. This mandates:

Immediate availability of full resuscitation equipment, including a functional defibrillator/ cardioverter, advanced airway supplies, and emergency medications.

Staff competency in recognizing cardiac arrest and initiating immediate, high-quality cardiopulmonary resuscitation (CPR) without delay.

Established protocols for activating advanced cardiac life support (ACLS) and rapid transfer to an intensive care setting if required.

In summary, the safe administration of ECT hinges on a multi-layered defense strategy integrating vigilant monitoring, evidence-based pharmacological prophylaxis, patient optimization, and a culture of readiness for emergencies. Adherence to these principles is essential to minimize cardiac risk and ensure that this vital therapeutic modality can be delivered with the highest possible standard of safety.

## Ethical Considerations

### Ethics approval and consent to participate

(SEMUMS, Ethical code: IR.SEMUMS.REC.1403.101).

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### Conflict of Interests

The authors have no conflict of interest to declare.

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