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Electroconvulsive Therapy in the Presence of Cranial Metallic Objects

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To the Editor:

We read with interest the report by Freeman et al¹ of the safe and successful administration of electroconvulsive therapy (ECT) in a patient with maxillary and mandibular metallic implants. We report herein successful administration of 2 courses of ECT in a patient with facial metallic implants (FMIs).

CASE REPORT

A 52-year-old man was admitted to a psychiatric hospital for the treatment of bipolar I disorder, depressed, without psychotic features for several weeks' duration characterized by depressed mood, anhedonia, sleep disturbance, hopelessness, diminished energy, low libido, and suicidal thoughts to jump in front of a train. The patient was first diagnosed with bipolar disorder at the age of 23 years. He received numerous trials of medications that included mood stabilizers, antidepressants, benzodiazepines, and antipsychotics. The patient attempted suicide twice by overdosing with prescribed medications and jumping in front of a train. He had a family history of suicide, with 3 first-degree relatives dying by hanging, overdosing, and wrist cutting. His medical history was significant for hypertension, hypercholesterolemia, non-insulin-dependent diabetes, as well as a remote (>20 years) facial reconstructive surgery and subsequent placement of a titanium plate over his left zygomatic, maxillary, and frontal bones after he was attacked while jogging. Given the severity of the patient's symptoms and lack of response to psychopharmacology, ECT was considered. Before ECT, the patient scored 30 of 30 on the Folstein Mini-Mental Status Examination²

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and 32 on the 17-item Hamilton Rating Scale for Depression.³ Medicine, neurology, and ophthalmology were consulted. No additional known risk was identified. Amlodipine 10 mg daily and metformin 1000 mg daily were continued. Informed consent for ECT was obtained, and we additionally documented discussion of the unclear risk associated with ECT in the presence of a craniofacial titanium plate. The Thymatron System IV ECT device was used. Right unilateral ECT was begun using the d'Elia position, and seizure threshold of 5% (motor seizure, 48.7 seconds; electroencephalographic seizure, 99.7 seconds) was determined by titration. The following stimulus parameters were subsequently used: energy, 30%; current, 0.9 A; pulse width, 0.25 milliseconds; frequency, 50 Hz; charge, 150 millicoulombs; and stimulus duration, 6.7 seconds. The motor seizure duration ranged between 16.6 and 49.7 seconds; the electroencephalographic seizure duration ranged from 24.6 to 99.7 seconds. During the course of ECT, the patient's medications included venlafaxine XR 75 mg daily. The patient responded to 12 treatments. There were no side effects except for mild-to-moderate headache managed by ibuprofen. The patient was discharged on venlafaxine XR 225 mg and lithium carbonate 1200 mg (level, 0.8 mEq/L). On the day of discharge, he scored 30 of 30 on the Folstein Mini-Mental Status Examination and 12 on the Hamilton Rating Scale for Depression. Five months later, the patient was readmitted for a depressive relapse in the context of medication noncompliance. After reevaluation and obtaining a new consent, another course of right unilateral ECT was administered (energy 30% throughout). The patient responded well after 9 treatments, with no complications. He was once again discharged on venlafaxine XR and lithium carbonate after further education regarding the need for adherence.

COMMENT

A recent review article⁴ of the safety of ECT in the presence of cranial metallic objects (cMOs) identified 4 cases with FMI among 24 cMO cases overall. Besides FMI, the other types of cMO in these patients reviewed by Gahr et al⁴ consisted of cerebral clipping systems, 8 cases; cerebral coils, 2 cases; deep brain stimulator, 4 cases; osteosynthesis materials or other metallic medical devices, 7 cases; and for eign bodies, 3 cases. Including our case, that of Freeman et al,¹ and those of Gahr et al,⁴ there are now 6 reports concerning FMI. The experience with cMO and ECT apparently consists of 26 cases overall.

Neither the case reported by Freeman et al¹ nor the cMO cases reviewed by Gahr et al⁴ were described as receiving more than 1 course of ECT. In our patient, 2 courses of ECT in the presence of FMI were administrated safely and successfully twice within a 5-month period.

In summary, we are encouraged by an expanding literature indicating that ECT can be used safely and effectively in patients with various types of cMO.

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