

Long-Term Maintenance Electroconvulsive Therapy in the Treatment of Schizophrenia and Schizoaffective Disorder—A Case Series

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Introduction

Since the first days of electroconvulsive therapy (ECT) over seventy years ago when Cerletti first treated a schizophrenic patient, it has been established that ECT is an effective treatment for psychotic disorders (1). Electroconvulsive therapy was once the mainstay of biological treatments for psychotic disorders, but with the advent of neuroleptics, most schizophrenic and schizoaffective disorder patients were treated primarily with medications. For treatment-refractory patients, however, or for those with acute exacerbations of psychoses, the addition of ECT to neuroleptics is effective in reducing psychotic and affective symptoms (2-4). Both acute and short-term maintenance ECT (mECT) have been utilized and are effective in this patient population (5-7). Chanpattana and colleagues have reported on the use of combined acute course neuroleptics in treatment-resistant schizophrenia, with fifty-five percent of patients showing clinical improvement in positive symptoms (8). Additionally, they reported sustained improvement in quality of life, psychopathology, and social functioning in the majority of treatment-refractory schizophrenia patients treated with mECT for one year (9).

Schizophrenia and schizoaffective disorder are lifelong illnesses, typically beginning in the early decades of life, and

require long-term treatment. There is little in the current literature to describe or support the use of long-term mECT in this population. In this paper we present eight cases; patients with schizophrenia or schizoaffective disorder who have successfully received long-term mECT (greater than two years) in conjunction with neuroleptic medication (see Table 1). In each patient, attempts to taper or discontinue mECT were unsuccessful and the quality of their lives appeared to be improved by the use of long-term mECT.

Methods

All patients with a primary diagnosis of schizophrenia or schizoaffective disorder who received mECT in our practice after 1999 were eligible for the study. Patients receiving an acute ECT series followed by mECT that continued over two years without an interruption greater than three months were enrolled in this case review study.

This is a retrospective clinical chart review; all clinical decisions such as when to start treatment, duration of treatment, lead placement, mECT treatment intervals, and medications were made by psychiatrists as a part of clinical care and were not standardized among patients. Although not uniform for all study patients, our practice is to typically treat patients in an acute series until sustained remission or a plateau in the presenting symptoms is achieved. The mECT is then typically delivered at weekly intervals and gradually titrated to progressively longer intervals between treatments. If clinically-significant symptoms recur, the dosing interval is decreased to the previous effective treatment interval. When warranted by the clinical presentation, relapsed patients may receive another acute series followed by a return to mECT.

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Table 1 Eight Cases

Case	Age at mECT Start	Years Treated	# of ECT Tx : mECT + Acute Series	Lead Placement	Side Effects
1	40 y/o F	4.5	54	bifrontal + bitemporal	cognitive complaints
2	85 y/o F	3	35	bifrontal + RUL	one episode of severe confusion
3	25 y/o M	3.5	168	bitemporal	none
4	33 y/o M	3	87	bitemporal	cognitive complaints fatigue headaches
5	29 y/o F	2.5	54	bitemporal	none
6	51 y/o M	7	205	bitemporal	cognitive complaints loss of tooth
7	74 y/o M	5	80	bitemporal	urinary retention ventricular ectopy
8	22 y/o M	5.5	335	bitemporal	none

mECT=short-term maintenance electroconvulsive therapy;
ECT=electroconvulsive therapy; RUL=right unilateral

Case 1

Ms. A presented to our clinic at age forty for a second opinion regarding diagnosis and treatment options for schizoaffective disorder. She had episodes of depression in her twenties, successfully treated with antidepressants. She developed psychotic symptoms (delusions, hallucinations) for the first time at age thirty-two during a period of time when she was not experiencing significant depressive symptoms. Neuroleptic trials of risperidone, ziprasidone, and olanzapine were not efficacious, and she was treated on three occasions with acute series of ECT over a three-year period. Each ECT series improved her psychotic symptoms, but her psychotic symptoms returned shortly after discontinuation of the ECT when she was treated with neuroleptic medications alone. At our clinic, we concurred with the schizoaffective disorder diagnosis and recommended a trial of clozapine or a course of ECT followed by mECT. The patient and her family chose to proceed with ECT. She underwent a course of acute ECT, receiving eight treatments in the series (five bifrontal treatments and three bitemporal treatments). Neuroleptics (ziprasidone, olanzapine) and venlafaxine were continued throughout the series. She had a significant reduction in psychotic symptoms and became more socially engaged, but was troubled by subjective cognitive complaints throughout the ECT series. The patient was placed on mECT and continued on neuroleptics. Two years into mECT, the treatments were stopped at patient request,

and she quickly decompensated. She was hospitalized with depressive and psychotic symptoms, and ECT was restarted. Within four treatments, her psychotic symptoms remitted. Throughout the mECT period, her psychotic symptoms were occasionally present but manageable by the patient. There were no untoward events throughout the course of her treatment, and she experienced some subjective short-term memory complaints. She was lost to follow-up four and a half years after beginning mECT.

Case 2

At age eighty-five, Ms. B, who had a fifty-year history of paranoid schizophrenia, was hospitalized on our service with psychotic symptoms, including auditory hallucinations, ideas of reference, and paranoid delusions. When well, the patient was pleasant and able to function in her community without difficulty, but she had been hospitalized over fifteen times in her life with acute psychotic episodes (not associated with mania). She had received at least five acute series of ECT in the past with good effect, but had never been on mECT. She had tried several neuroleptics over the decades without consistent success. She had a history of glaucoma and cardiac pacemaker placement for bradyarrhythmias. She underwent an acute series of five bifrontal ECT, and her symptoms quickly remitted. She was continued on risperidone and mECT, eventually reaching the point where once-

monthly treatments would successfully treat her psychotic symptoms. Following her thirteenth mECT she became delirious and combative upon awakening from the treatment. The decision was made to hold any further treatments, and within three months she was again psychotic and received another acute ECT series of five treatments which she tolerated well. She was then returned to mECT and received another twelve treatments before being lost to follow-up.

Case 3

Mr. C presented at age twenty-five with a five-year history of paranoid schizophrenia. He had been hospitalized four times previously with somatic delusions, auditory hallucinations which commanded him to kill his parents, and an episode where he had stalked a woman in his local community. He had experienced catatonia on one occasion. His care was transferred to our facility upon discharge from the state psychiatric hospital following a three-month commitment. He received a course of seven bitemporal ECT during that hospitalization and was discharged to mECT, clozapine, and olanzapine. At the time of discharge he was continuing to have some somatic delusions, less frequent and less intrusive auditory hallucinations, and several negative symptoms of schizophrenia. Over the course of the last three and a half years, the patient has received weekly bitemporal mECT treatments. Attempts to wean him to lower doses of clozapine or olanzapine, or to reduce the frequency of mECT, have resulted in an escalation in his psychotic symptoms. Since being on mECT he has not required rehospitalization, has been able to work part time in a family business, and has been able to successfully travel by airplane with family members. He continues to be treated in our practice.

Case 4

Mr. D is a thirty-two year old man with schizoaffective disorder who had experienced intermittent depressive episodes and psychotic episodes throughout much of his adult life, having experienced episodes of psychosis independent of depressive episodes on several occasions. He also has a history of alcohol dependence, and when in relapse his mood and psychotic symptoms would worsen. He experienced paranoia and auditory hallucinations daily, but when more ill he would have ego-dystonic command hallucinations to kill his parents. Trials of antidepressants were helpful for depressive symptoms, but neuroleptics were ineffective in reducing psychotic symptoms consistently. A trial of clozapine was discontinued when his neutrophil count dropped. At his third hospitalization in five months for depression and psychotic symptoms, an acute ECT series of nine bitemporal treatments successfully treated his depression and substantially reduced his paranoia and auditory hallucinations. He was placed on mECT and risperidone and was stable over the

next fourteen months. We attempted to gradually increase the interval between mECT treatments, but when treatments were reduced to three-week intervals he developed a return of depression and a return of command hallucinations to kill his parents. An acute series of five ECT followed by mECT every two weeks has successfully treated his depression and reduced his psychotic symptoms to the level where he is able to work in a sheltered employment environment and remain out of the hospital. He has been sober for over three years, something he had been unable to maintain prior to ECT. He continues to be treated in our practice.

Case 5

Ms. E presented to our inpatient psychiatric unit at age twenty-nine with a history of mild mental retardation and schizoaffective disorder. She had been residing in a group home and was employed in a sheltered work environment. She had experienced several episodes of depression previously. At the time of admission she had become increasingly paranoid and delusional. In the group home she had become quite easily agitated, angry, and aggressive toward others. She was experiencing auditory hallucinations and delusions that people were talking about her. Trials of several typical and atypical neuroleptics, including clozapine, had only reduced her psychotic symptoms, but had never fully alleviated them. She underwent a course of thirteen bitemporal ECT treatments, which she tolerated well. Her psychotic symptoms completely remitted, and when she was discharged, she was calm and pleasant and had no aggression toward others. Over the next seventeen months she received fifty-four mECT treatments and remained euthymic without psychotic symptoms or aggression.

The patient was receiving biweekly mECT and fractured her ankle in an accident requiring hospitalization and surgical fixation of her lower extremity. As a result, she went one month without ECT. She again developed irritability, disorganized thinking, and paranoia about other group home residents. She was hospitalized and received an acute series of five bitemporal treatments, and her symptoms remitted. She is continuing to be followed in our practice and is again receiving mECT.

Case 6

Mr. F was fifty-one years old when he was referred to our practice from a state psychiatric hospital, where he had lived for over fifteen years. He was being released to reside in the community and was referred to us to continue mECT which he had been receiving for at least ten years (complete records from the state facility were unavailable at the time his care was transferred). The patient had a history of schizophrenia marked by severe somatic delusions, hallucinations, derailment and prominent negative symptoms, which included

affective flattening and poor social reciprocity. He was diagnosed with schizophrenia in his twenties and had lived most of his adult life in the state psychiatric hospital setting. Before ECT was initiated, he had been treated unsuccessfully with several neuroleptics and antidepressant trials. We do not know how many ECT treatments he had received prior to being transferred to our care.

When his care was transferred, we continued clozapine and bitemporal ECT in two-week intervals. The patient was able to reside in a group home setting, and while the negative symptoms persisted, his positive symptoms were kept under good control.

His treatment and care continued uneventfully for four years until he suddenly developed disorganized and odd behavior, becoming mute and repeatedly flushing facial tissues down the toilet in the group home. Shortly thereafter, he became frankly catatonic and was hospitalized. He underwent an acute course of nine bitemporal ECT, and his symptoms resolved. He was discharged to the group home and resumed mECT. Three years later he continues to live in the group home setting and has not required hospitalization.

Case 7

Mr. G was a seventy-one year old male, a retired postal worker, with a long-standing history of schizoaffective disorder, bipolar type. His medical diagnoses included hypertension, coronary artery disease, Type II diabetes mellitus, and chronic renal insufficiency from chronic lithium use. He had been hospitalized over fifteen times throughout his adult life for psychotic episodes or for mania. His psychotic symptoms included persecutory delusions, ideas of reference and auditory hallucinations. He had undergone four successful ECT courses for mania and psychosis, but had never received mECT. He had been maintained for many years on Stelazine and lithium, the lithium having been recently replaced with valproate because of renal insufficiency. He presented with manic symptoms. Given his previous positive response to ECT, he received a course of nine bitemporal treatments. His manic and psychotic symptoms remitted, and he was discharged to mECT, olanzapine, and valproate. He was gradually titrated out to monthly mECT.

One year later he developed a recurrence of manic symptoms during a period of poor medication compliance. He was rehospitalized and received an acute course of nine bitemporal ECT and was again discharged to mECT. During this series he experienced an episode of ventricular ectopy in the ECT suite. This ectopy resolved quickly on its own. He had been chronically hyperkalemic due to his renal insufficiency. After consultation with the cardiology service, the patient and family agreed to continue ECT, knowing that he was at risk for arrhythmias and sudden death during or after ECT treatment.

Over the course of the next four years he did well from a psychiatric perspective. He experienced no affective symptoms or manic events. His persecutory delusions almost completely remitted, and the patient required no further psychiatric hospitalization. The patient continued with monthly mECT and suffered no further cardiac events. Four years later (one week after his last ECT), the patient was found deceased one morning in his bed. No autopsy was performed, and his death was presumed to have been from cardiac causes.

Case 8

Mr. H was twenty-two years old when he transferred to our practice from an inpatient state psychiatric facility where he had been receiving ECT for the treatment of psychotic symptoms, including paranoia, irritability and auditory hallucinations. The patient was born in Bosnia and speaks only very limited English. The patient has been in our practice, residing in a group home, for the last five and a half years, and his psychiatric course has been difficult. He infrequently will be poorly compliant with medications (he is maintained on olanzapine and divalproex) and has experienced several episodes of increased agitation, disorganized behavior, and paranoia. Additionally, when mECT has been interrupted his symptoms recur. He has been receiving weekly mECT over the course of the last five and a half years. Attempts to increase his mECT schedule beyond weekly treatments have resulted in an increase in psychotic symptoms. He has been hospitalized eleven times within the last five and a half years, each time receiving a short course (three to four treatments) of acute ECT, and he typically quickly returns to his usual baseline of being pleasant, directable and socially interactive within the group home setting.

Discussion

Medication-refractory schizophrenia and schizoaffective disorders are debilitating illnesses which can lead to frequent hospitalizations, poor psychosocial functioning and increased suffering on the part of patients. ECT can effectively reduce or eliminate psychotic and affective symptoms in this population.

Psychotic disorders typically start when people are young. The patients will face a lifetime of managing illnesses often poorly controlled by neuroleptics. When medications fail to prevent severe symptoms, or when patients have recurrent psychotic episodes, ECT is often introduced. When ECT is effective, clinicians are left with the question of whether or not to continue mECT, and if so, for how long.

This case series supports the notion that acute ECT, followed by long-term mECT, is an effective strategy for treating psychotic disorders in conjunction with neuroleptic medication. All eight patients showed clinical improvement

with ECT, improvement that was sustained by mECT. Hospitalization rates were reduced for seven of these patients and (with the exception of Case 2, an elderly woman who developed severe confusion after a mECT treatment) occurred only when mECT was interrupted or the dosing interval increased beyond an effective time frame.

Our experience with this patient group supports the use of long-term mECT in this patient population. It is our contention that long-term mECT improved overall patient quality of life and decreased psychotic and/or affective symptoms substantially in all patients. Despite the obvious inconvenience of returning regularly to the ECT suite for treatment and the associated encumbrances (time off from work, transportation issues, requiring twenty-four hour supervision following treatment, inconvenience to families and other caregivers, headache, short-term memory changes, etc.), patients and their families continued to agree to mECT, and clinicians continued to prescribe it. We believe the psychotic illnesses were consistently improved with mECT, to the point where the inconvenience of continuing the treatments was of lesser importance to patients and their families than the sustained improvement the patients enjoyed.

Being a retrospective chart review, this case series has obvious limitations. There are no objective rating scales to quantify patient symptomatology or side effects from treatment. Patients' care was not uniform in terms of neuroleptics and ECT dosing, schedule, or lead placement. The authors are involved in ECT practice and treated each of these patients, introducing a potential bias in data extraction and interpretation. Some of these limitations could be overcome through a prospective study, which includes a control group that does not receive ECT.

Conclusions

Acute ECT series followed by long-term mECT is a safe, effective, and well-tolerated treatment strategy for schizophrenia and schizoaffective disordered patients whose symptoms have not adequately responded to neuroleptics alone.

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