Annals of Clinical Case Reports

Case Report
Published: 04 Apr, 2017

Ultra-Brief Pulse Right Unilateral ECT Combined with Lorazepam to Sustain Catatonia Remission as a Continuation Treatment: A Case Report

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Abstract

Objective and Background: Catatonia can be a recurrent psychiatric condition that has severe complications especially in the elderly population; however, options to prevent recurrence are limited.

Case Report: A 62 year old woman with a history of bipolar depression and catatonia relapsed after becoming non adherent with outpatient ECT follow up, despite the continued daily use of lorazepam and other psychotropic medications. Cessation of ECT maintenance resulted in catatonic recurrence secondary to bipolar depression within 1 month.

The patient was subsequently rehospitalized and treated with ultra-brief pulse RUL ECT acutely, then tapered eventually to monthly as maintenance treatment. She has successfully remained in remission more than 6 months after discharge.

Conclusion: Ultra-brief pulse RUL ECT is effective to prevent catatonia relapse and as a long-term maintenance treatment. It did not cause any apparent cognitive impairment in this elderly patient. Ultra-brief pulse RUL ECT can be considered as an acute and maintenance treatment option for catatonia in addition to lorazepam.

Keywords: Catatonia; Bipolar depression; Ultra-brief pulse; Right unilateral;Electroconvulsive therapy; Continuation treatment

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Received Date: *11 Nov 2016*
Accepted Date: *30 Mar 2017*
Published Date: *04 Apr 2017*

Citation:
Wang D, Stolyar A. Ultra-Brief Pulse Right Unilateral ECT Combined with Lorazepam to Sustain Catatonia Remission as a Continuation Treatment: A Case Report. Ann Clin Case Rep. 2017; 2: 1321.

ISSN: 2474-1655

Introduction

Catatonia is a neuropsychiatric syndrome characterized by 3 or more of the following 12 psychomotor symptoms: stupor, cataplexy, waxy flexibility, mutism, negativism, posturing, mannerism, stereotype, agitation, grimacing, echolalia, or echopraxia; it can be commonly associated with affective and thought disorders, or with other medical conditions [1,2]. Incidences have been reported in a wide range of age groups [3] and particularly in the geriatric population, under-recognition of catatonia can lead to severe complications such as muscle damage, dehydration, thrombi-embolic events, decubitus ulcer, and death [4,5]. Current treatment options include benzodiazepines as first line. Lorazepam is the most frequently used due to its rapid onset. In reported case series and open trials, lorazepam, given parentally or orally, has a response rate of 60–80% within hours to days [4]. If catatonia persists, second line treatment can be electroconvulsive therapy (ECT). Bilateral ECT is regarded as more effective and produces faster responses [6]; however, it carries a higher risk of retrograde amnesia.

Right unilateral (RUL) (d'Elia placement) ECT, on the other hand, can reduce adverse cognitive side effects and still be effective [7], especially when administered with the ultra-brief pulse width of less than 0.5ms [8]. In the geriatric population, this approach should be tried first to minimize cognitive impairment in the elderly. Although there are many case reports and small prospective studies showing the effectiveness of ECT treatment for acute catatonia [9], few have demonstrated the use of ECT for maintenance treatment to prevent catatonia relapse. This case report highlights the benefit of using ultra-brief pulse RUL ECT as a maintenance treatment.

Case Presentation

Catatonia associated with bipolar depression

A 62-year-old Hispanic woman, who had a history of bipolar I disorder and catatonia, presented

Table 1: Patient's response to ECT measured periodically.

Admission	Number of ECT received	QIDS*	BASIS24*	MOCA*
1/9/14 First admission	0	12	19	21
1/28 First discharged	8	7	15	
3/17/14 After second re-admission (on 3/3/14)	20	6	10	
3/28/14 Second discharged	24	8	13	24
6/3/14 Outpatient ECT follow up	30	3	4	

*QIDS: Quick Inventory of Depressive Symptomatology.
*BASIS 24: Behavior and Symptom Identification Scale.
*MOCA: Montreal Cognitive Assessment.

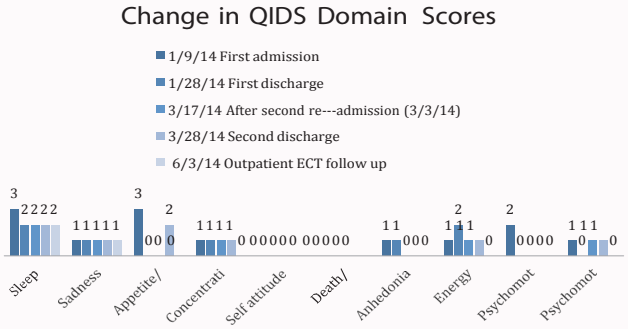

Figure 1: Change in QIDS Domain Scores.

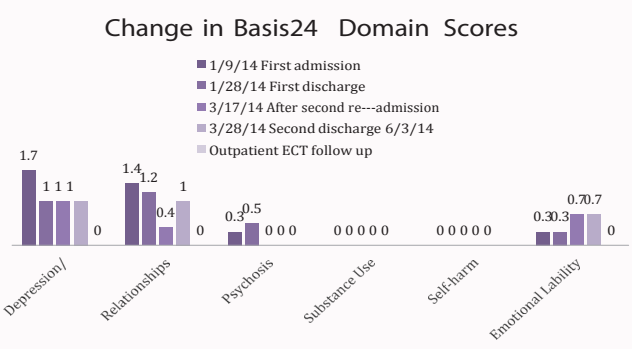

Figure 2: Change in Basis 24 Domain Scores.

to the hospital on March 3rd, 2014, accompanied by her daughter due to patient's worsening depression and recurrent catatonia after stopping outpatient ECT. Her medical conditions included hypothyroidism and type II diabetes mellitus non-insulin dependent. She appeared mute and severely depressed with a flat affect consist of hollow stares. She had striking psychomotor retardation symptom of slowed movements. She did not follow any verbal commands, did not respond to any questions, and lacked response to any external stimuli. According to the daughter who lived with the patient, she had been getting more and more depressed in the past month. Over the past week, she began to neglect personal hygiene and isolate away from her family. She also had difficulties performing activities of daily living (ADL). The patient had stopped oral intake for a couple of days, but she was not observed to have any manic or psychotic symptoms, and did not exhibit any suicidal behavior or expressed any suicidal ideation. This was a significant decline from her baseline function. Laboratory findings on electrolytes, urine analysis, complete blood count, blood glucose, TSH, T4, liver enzyme were all within normal limits.

Medical staff recognized the patient from a recent admission. Two months earlier in Jan 2014, the patient presented to the hospital with a similar presentation of 2-3 days of negativism and declining from baseline functioning at home. She was hospitalized for catatonia. During the course of the hospitalization, she was first treated with high doses of lorazepam, up to 8 mg per day, without an adequate response. She then received three-times-a-week ultra-brief pulse RUL ECT's (0.3 ms pulse width) at 8 times the seizure threshold, frequency 60 Hz, charge 230 mC. For muscle relaxant and anesthesia, she got succinylcholine 50 mg, methohexital 80 mg, and propofol 30 mg. Her catatonic symptoms rapidly improved. On discharge, the patient had a bright affect, was engaged in conversations with appropriate eye contact, and responded to questions with a soft fluent speech, adequate PO intake, which were all dramatic improvements from her initial severe neurovegetative state. Discharge psychotropic medications were lorazepam 1 mg PO TID, trazodone 50 mg, and mirtazapine 30 mg PO hs. She was scheduled to receive outpatient maintenance ultra-brief pulse RUL ECT in the same setting, twice a week. She received 4 more outpatient treatments; unfortunately, due to her transportation difficulty, she was unable to continue. Meanwhile, she remained adherent to her discharge psychotropic medications, including the lorazepam. Last ECT was on 2/11/14, three weeks prior to catatonia relapse before she presented to the hospital again in March. Given her previous rapid response to ECT and not to lorazepam, she was immediately re-started on ultra-brief pulse RUL ECT on this admission. The settings were: 8 times seizure threshold, frequency 90 Hz, pulse width 0.3 ms, charge 345 mC, with succinylcholine 50 mg, methohexital 80 mg and propofol 30 mg for the muscle relaxant and anesthesia. After 2 treatments, patient's condition began to improve. She was starting to respond to questions and to attend the unit's group therapy. Of note, her husband passed away during this hospitalization. Despite this significant emotional distress, she did not relapse. After a total of 10 ECT treatments and 25 days of hospital stay, patient fully recovered and was discharged on 3/28/14, with the follow medications: aripiprazole 20 mg PO daily, levothyroxine 112mcg PO daily, trazodone 50 mg PO hs, mirtazapine 30 mg PO hs and metformin/sitagliptin 1000 mg PO BID. No laboratory abnormalities were found during her hospital course. The patient gave consent for release of medical records and agreed for information to be used for teaching purposes such as in a case report. She continued with outpatient medications as well as outpatient ECT follows up. Initially, maintenance ultra-brief pulse RUL ECT was done once a week. After 3 weeks, the sessions decreased to biweekly for one month, then to every 3 weeks. She was eventually maintained on a once a month ECT regiment. She remained symptom-free from bipolar disorder or catatonia for more than 6 months after discharge. Symptomatic improvements according to the Quick Inventory of Depressive Symptomatology (QIDS) and the Behavior and Symptom Identification Scale (BASIS24) were recorded, see Table 1. No significant decline in cognition was observed. In fact, Montreal Cognitive Assessment (MOCA) prior to starting ECT was 21 out of 30, and after 24 sessions of ultra-brief RUL ECT (combined from two hospitalizations and outpatient treatments), the MOCA score improved to 24 out of 30.

Discussion

Given the recurrent nature of catatonia and multi-factorial causes that can result in relapse, effective preventative management is vital. It is also important not only to treat catatonia, but to address the

underlying psychiatric and/or medical condition as well. In this case, no obvious medical etiologies, other than the patient's treated baseline hypothyroidism and diabetes that are both well controlled, could be contributing to the patient's cause of catatonia, as evidenced by the repeated normal laboratory findings throughout hospitalization. Instead, the above case showed a time-lapsed association between discontinuation of maintenance ECT and catatonia relapse, despite oral lorazepam use. Lorazepam was first used to stabilize this patient, but it was inadequate. Up to 8 mg was used acutely and 1 mg TID maintenance dose failed to elicit an adequate response in this elderly patient. There are some catatonic patients who do not respond to benzodiazepine treatment alone.

On the other hand, response to ECT has been shown to correlate with symptom duration and severity in bipolar patient [10]. Bipolar depression may respond to ECT more rapidly and in fewer sessions than unipolar depression—a response that does not appear to be secondary to hypomanic induction [11,12]. ECT had the dual effect of treating both bipolar depression and catatonia. However, once ECT treatment stops, the majority of relapses from major depression happen within 6 to 9 weeks [13,14]. Patients with bipolar disorder are even more prone to relapse especially within the first month of discontinuing maintenance ECT [15]. In this patient, the relapse of both bipolar depression and catatonia happened after 3 weeks of stopping outpatient ECT, and her bipolar depressive symptoms had preceded the recurrence of catatonia. These points to the need for continued maintenance ECT treatment to prevent affective disorder relapse before it progresses in severity, possibly triggering catatonia. However, utilizing ECT as maintenance treatment for affective disorders with catatonia remains an area understudied. ECT has been shown to be a safe treatment in the elderly population to use [16]. In comparison to bilateral ECT, RUL ECT has better tolerability, less cognitive side effects, and equal efficacy [7]. Evidence suggests that ultra--brief pulse RUL ECT can achieve equal rapidity of response [17], while further reducing cognitive side effects [12]. As seen in this case, the patient did not have any observed cognitive decline after receiving 24 sessions of ultra-brief pulse RUL ECT. Assessment of gross cognitive function by MOCA actually showed improvement, possibly due to the lifting of her depression. This modality should be considered as a viable long-term option for prevention. This case report contributes to the accumulating body of evidence that suggests the efficacy of ultra-brief pulse RUL ECT as the maintenance treatment to prevent the recurrence of catatonia; however, it is limited because of the small subject number and the retrospective none blinding assessment. Although no formal catatonic scale was administered [18], patient's initial presentation met the criteria in DSM-5 for catatonia. The data collected on QIDS and Basis 24 showed her mental states in correlation with the number of ECT administered (Figure 1 and 2). After 30 ECT treatments, her symptoms in all domains were zero except for sleep, which remained the same. Using MOCA to track her cognitive changes was also helpful, even though the latest one of her most current state was not available. Nonetheless, given the lack of literature on this topic and the gravity of catatonia symptoms and clinical consequences, especially in the elderly, it's important to elucidate evidence that supports the use of maintenance therapy for catatonia prevention. Future study can focus on investigating systematically the effect of lorazepam and ECT in preventing catatonia relapse.

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