Electroconvulsive Therapy in Obsessive-Compulsive Disorder: A Chart Review and Evaluation of Its Potential Therapeutic Effects

Natália M. Lins-Martins, M.D., Murat Yücel, Ph.D., Fernanda Tovar-Moll, M.D., Erika C. Rodrigues, Ph.D., Leonardo F. Fontenelle, M.D.

In a chart review of patients with obsessive-compulsive disorder (OCD) attending a university clinic, ECT was prescribed for five subjects (1.2%), only because of severe intervening manic (N=1) or depressive episodes (N=4). Although affective symptoms improved in four of the five patients, OCD symptoms remained unchanged (N=3) or transiently worsened (N=2).

J Neuropsychiatry Clin Neurosci 2015; 27:65–68; doi: 10.1176/appi.neuropsych.13080184

Obsessive-compulsive disorder (OCD) is characterized by combinations of distressful thoughts, images or urges (obsessions), and repetitive mental or motor behaviors that are performed to reduce states of emotional discomfort or according to rigid rules (compulsions).[1] Typically, the symptoms of OCD organize themselves into five thematic clusters, including 1) contamination and washing; 2) sexual and religious; 3) aggressive and checking; 4) symmetry and ordering; and 5) hoarding.[2] In the most recent edition of the DSM diagnostic system (DSM-V), OCD is at the core of a new category termed "obsessive-compulsive and related disorders," together with body dysmorphic disorder, hoarding disorder, trichotillomania, and excoriation disorder.[1]

First-line treatments of OCD include serotonin reuptake inhibitors (SRIs) and cognitive behavioral therapy involving exposure and response prevention techniques. Typically, treatment with these strategies leads to therapeutic responses in up to 60% of patients with OCD.[3] Furthermore, if partially responsive patients are treated with SRIs in combination with augmentation strategies (e.g., antipsychotics) and remain adherent to treatment on a long-term basis, as many as 90% may eventually show a beneficial response.[4] Despite these apparently favorable figures, the treatment of patients with OCD can still be challenging for several reasons, including poor treatment adherence, increased family accommodation, intolerable side effects of SRIs, lack of an appropriate response, and the development of comorbidities that can be severe and difficult to treat, such as severe depression and acute mania.

There is a pressing need to study alternative treatment strategies for patients with treatment-resistant OCD. In fact, despite the long-held perception that ECT is ineffective for OCD,[5,6] there is a handful of reports pertaining to its successful use in patients with this condition. For instance, some have advocated for ECT in an attempt to manage treatment-resistant OCD,[7] whereas others argue that a unique form of this latter condition (i.e., treatment-resistant OCD that is secondary to a primary depressive illness[8]) may be particularly responsive to ECT. Some have also suggested that ECT should be reserved for the treatment of comorbid disorders in OCD rather than the OCD itself.[9] To help shed light on this complex issue, we describe the frequency of ECT use, the reasons for its prescription, and associated outcomes in patients attending a university-based OCD clinic. It is hoped that the findings will help guide future decisions regarding the potential therapeutic use of ECT in OCD.

METHODS

A retrospective chart-review of 420 records of patients with OCD seen in an OCD clinic in Rio de Janeiro, Brazil, during the period between 1998 and 2013 was performed. A trained clinician (N.L.M.) reviewed the medical records and extracted information concerning demographics (age and sex), OCD-related data (i.e., age at onset and OCD predominant dimensions), concomitant psychiatric diagnosis (according to the Structured Clinical Interview for DSM-IV Axis I Disorders), pre-ECT treatment features (i.e., previous adequate drug trials), and the patterns of response to ECT [i.e., primary indications for ECT, total number and frequency of ECT sessions, and response to ECT according to Clinical Global Impression (CGI)]. No charts were excluded on the basis of lack of sufficient information. This research

protocol was approved by our local institutional review board.

RESULTS

ECT was prescribed for only five patients (1.2%) across the entire sample (N=420). In these cases, ECT was used primarily for intervening mood disorders, including acute mania (one patient) and major depressive disorder with suicidal ideation (four patients). Coincidentally, all five cases exhibited treatment-resistant OCD, with a lack of an adequate response to high doses of different SRIs (administered for at least 3 months and potentiated by diverse antipsychotics) and to exposure and response prevention. Although mania or depressive symptoms improved in four patients, the OCD symptoms remained resistant to ECT in all patients, i.e., OCD's CGI Improvement Scale was ≥4. It is also worth noting that two patients described transient deterioration of their OCD symptoms following ECT, which led one of them to drop out of treatment before completion and the other to develop de novo obsessions with aggressive and sexual contents. Table 1 provides a description of these and other relevant OCD and ECT-related information pertaining to our sample.

DISCUSSION

Perhaps influenced by most current treatment protocols (which do not include ECT as a viable alternative in the management of OCD[3]), we recommended ECT to only 1.2% of our patients. Coincidentally, all five patients who were administered ECT had a history of minimal responses to several SRI trials potentiated with antipsychotics and to exposure and response prevention. Of note, in our case series, ECT was not prescribed to primarily manage underlying treatment-resistant OCD symptoms but rather to treat the associated acute mania and/or major depressive disorder with severe suicidal ideation. Accordingly, after ECT, four patients (80%) exhibited at least a partial remission of their mood disorder symptoms and two (40%) entered full remission. These findings are in broad agreement with previous studies showing a substantial response of both acute mania[10] and depression[11] to ECT. They also add further knowledge to the ECT literature by expanding the scenarios in which acute mania and depression are treatable by this potentially valuable therapeutic tool.

Although ECT was helpful in the treatment of mood disorders in the context of OCD, it typically did not lead to any therapeutic benefit for OCD symptoms per se. In fact, it was transiently detrimental in two (40%) of our patients. Specifically, although one patient reported short-lived de novo obsessions with aggressive and sexual contents, the other described more global deterioration of his OCD symptoms. It seems that OCD differs from major depression for failing to exhibit any significant response to more diffuse treatment techniques (e.g., ECT) but showing positive responses to stimulation of specific targets of the brain, such as in the case of deep brain stimulation of the ventral striatum, the subthalamic nucleus, or the inferior thalamic peduncle.[12] Indeed, although the efficacy of ECT in depression seems to stem from its effects on hypothalamus and hippocampus,[13] neurocircuitry targets in OCD are quite different, involving the orbitofrontal cortex and ventral striatum.

It is also intriguing that, despite sharing a positive response to SRIs, depression and OCD do not exhibit the same patterns of response to ECT. Although it has been shown that SRI should be administered in higher doses and for greater periods of time in OCD compared with depression,[14] it is not clear if further treatment modifications are required to increase the effectiveness of ECT in OCD. Indeed, it has been shown that response to conventional ECT in depression does not routinely involve changes in serotonergic activity,[15] an important component of several anti-OCD treatments. Potentially, other neurostimulation techniques (such as transcranial magnetic stimulation of specific brain regions and transcranial direct current stimulation) might, at least theoretically, promote greater changes in serotonergic systems[16] or in other OCD-relevant neural structures. Therefore, given the invasiveness and costs of treatments available for patients with treatment refractory OCD (i.e., DBS and neurosurgery), it is perhaps worth investigating other noninvasive brain stimulation approaches in OCD.

In the light of our present results, it seems clear that ECT, as currently administered, should be reserved for selected cases of patients with OCD displaying severe mood disorders. In addition, and despite these indications, clinicians should consider ECT's increased risk of worsening of OCD symptoms. In fact, when interpreting studies describing OCD patients with positive responses to ECT, one should consider that most of them were published a long time ago [even before effective treatments of OCD were available (e.g., SRIs)], included patients with atypical features (e.g., very late onset OCD),[7] and did not systematically incorporate standardized assessment methods of OCD [e.g., Yale-Brown Obsessive Compulsive Scale (YBOCS) and/or CGI].

Admittedly, our study has several limitations, including the small number of patients and other problems that are inherent to a chart review. Retrospective assessments are always dependent on the quality and completeness of the available information, which are rarely ideal. Because the indication for ECT in our patients was an intervening mood disorder, it could be argued that OCD symptom assessment was not a priority at the time of ECT administration. In fact, despite being assessed with a standardized tool (CGI), severity of OCD was not systematically evaluated with state-of-the art instruments, such the YBOCS.

Although our findings do not disprove the effectiveness of ECT in OCD, they call for further refinements in its indications. For instance, given that some OCD symptom dimensions appear to be more clearly related to depression (e.g., aggressive/checking and sexual/religious dimensions),[17] it remains to be established whether ECT or other neurostimulatory techniques are particularly effective for patients showing an specific pattern of OCD symptoms.

TABLE 1. Description of the Sociodemographic, Clinical, and Therapeutic Features of Patients With OCD Treated With ECT in Our Center

	OCD features				ECT data			
Patients (age and sex)	Age at OCD onset (years)	OCD predominant dimensions	Comorbidities	Previous adequate trials with SRI/antipsychotic augmentation	Primary indications for ECT	Total number of sessions/frequency	Primary indication's response to ECT	OCD response to ECT
37-year-old man	29	Symmetry and ordering (e.g., need to touch, tap, or rub)	Bipolar disorder	Fluoxetine 60 mg/day Paroxetine 60 mg/day Olanzapine 30 mg/day Thioridazine 500 mg/day	Acute mania	9 sessions/2 sessions per week	Full remission of acute mania symptoms	Transient worsening of OCD symptoms (CGI=6)
36-year-old woman	17	Aggressive and checking Miscellaneous (e.g., self-mutilation)	Body dysmorphic disorder Bipolar disorder Panic disorder Personality disorder not otherwise specified	Clomipramine 225 mg/day Paroxetine 60mg/d Sertraline 150 mg/day Fluvoxamine 150 mg/day Levomepromazine 700 mg/day	Depressive episode with suicidal ideation	9 sessions/2 sessions per week	Partial remission of depressive symptoms	No response (CGI=4)
55-year-old man	14	Contamination and washing Aggressive and checking	Major depressive disorder	Fluoxetine 80 mg/day Clomipramine 225 mg/day Risperidone 1 mg/day Mirtazapine 90 mg/day	Depressive episode with suicidal ideation	6 sessions 1–2 sessions per week	No response	Transient worsening of OCD symp toms (CGI=5)
56-year-old woman	20	Symmetry and ordering (e.g., repeating rituals) Aggressive and checking Contamination and washing	Bipolar disorder	Fluoxetine 60 mg/day Risperidone 2 mg/day Venlafaxine 450 mg/day	Depressive episode with suicidal ideation	19 sessions/2 sessions per week	Partial remission of depressive symptoms	No response (CGI=4)
35-year-old man	20	Miscellaneous (e.g., lucky/unlucky names, numbers, and dates)	Asperger syndrome Major depressive disorder	Sertraline 100 mg/day Imipramine 250 mg/day Fluoxetine 60 mg/day Risperidone 4 mg/day	Depressive episode with suicidal attempt	10 sessions/2 sessions per week	Full remission of depressive symptoms	No response (CGI=4)

CGI: Clinical Global Impression; OCD: obsessive-compulsive disorder; SRI: serotonin reuptake inhibitor.

AUTHOR AND ARTICLE INFORMATION

From the Anxiety and Obsessive-Compulsive Spectrums Research Program, Institute of Psychiatry, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil (NML-M, LFF); Monash Clinical and Imaging Neuroscience Laboratory, School of Psychological Sciences, Monash University, Monash Biomedical Imaging Facility, Melbourne, VIC, Australia (MY); D'Or Institute for Research and Education, Rio de Janeiro, Brazil (FT-M, ECR, LFF); and Dept. of Psychiatry and Mental Health, Universidade Federal Fluminense, Hospital Universitário Antonio Pedro, Niterói, Brazil (LFF)

Send correspondence to: Leonardo F. Fontenelle, M.D., Ph.D.; e-mail: lfontenelle@gmail.com

Received Aug. 16, 2013; revised Nov. 27, 2013; accepted Nov. 27, 2013.

REFERENCES

1. APA: Diagnostic and Statistical Manual of Mental Disorders: DSM-5. Washington, DC, American Psychiatric Publishing, 2013
2. Mataix-Cols D, Rosario-Campos MC, Leckman JF: A multidimensional model of obsessive-compulsive disorder. Am J Psychiatry 2005; 162:228–238
3. Stein DJ, Koen N, Fineberg N, et al: A 2012 evidence-based algorithm for the pharmacotherapy for obsessive-compulsive disorder. Curr Psychiatry Rep 2012; 14:211–219
4. Jenike MA: Drug Treatment of Obsessive-Compulsive Disorders, in Obsessive-Compulsive Disorders: Practical Management, 3rd ed. Edited by Jenike MA, Baer L, Minichiello WE. St. Louis, Mosby, 1998, pp 469–532
5. Kalinowsky LB, Hippius H: Pharmacological, convulsive, and other somatic treatments in psychiatry. New York, London, Grune & Stratton, 1969
6. Beale MD, Kellner CH, Pritchett JT, et al: ECT for OCD. J Clin Psychiatry 1995; 56:81–82
7. Loi S, Bonwick R: Electroconvulsive therapy for treatment of late-onset obsessive compulsive disorder. Int Psychogeriatr 2010; 22:830–831
8. Mellman LA, Gorman JM: Successful treatment of obsessive-compulsive disorder with ECT. Am J Psychiatry 1984; 141:596–597
9. Hanisch F, Friedemann J, Piro J, et al: Maintenance electroconvulsive therapy for comorbid pharmacotherapy-refractory obsessive-compulsive and schizoaffective disorder. Eur J Med Res 2009; 14: 367–368
10. Mukherjee S, Sackeim HA, Schnur DB: Electroconvulsive therapy of acute manic episodes: a review of 50 years' experience. Am J Psychiatry 1994; 151:169–176
11. Antunes PB, Rosa MA, Belmonte-de-Abreu PS, et al: [Electroconvulsive therapy in major depression: current aspects]. Rev Bras Psiquiatr 2009; 31(Suppl 1):S26–S33
12. Blomstedt P, Sjoberg RL, Hansson M, et al: Deep Brain Stimulation in the Treatment of Obsessive-Compulsive Disorder. World Neurosurg, 2012
13. Bolwig TG: How does electroconvulsive therapy work? Theories on its mechanism. Can J Psychiatry 2011; 56:13–18
14. Fontenelle LF, Nascimento AL, Mendlowicz MV, et al: An update on the pharmacological treatment of obsessive-compulsive disorder. Expert Opin Pharmacother 2007; 8:563–583
15. Goto S, Terao T, Hoaki N, et al: Is serotonergic function associated with the antidepressant effects of modified-electroconvulsive therapy? J Affect Disord 2012; 136:1062–1066
16. Brunoni AR, Kemp AH, Shiozawa P, et al: Impact of 5-HTTLPR and BDNF polymorphisms on response to sertraline versus transcranial direct current stimulation: Implications for the serotonergic system. Eur Neuropsychopharmacol 2013; 23:1530–1540
17. Rosario-Campos MC, Miguel EC, Quatrano S, et al: The Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS): an instrument for assessing obsessive-compulsive symptom dimensions. Mol Psychiatry 2006; 11:495–504