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Editorial
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ECT as an Early Treatment Option in Schizophrenia: Should we Reconsider?

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Editorial

The implementation of Electroconvulsive Therapy (ECT) in schizophrenic patients is often reserved for treatment-resistant schizophrenia, defined by The International Psychopharmacology Algorithm Project as patients who have not responded to trials of more than two antipsychotic medications and clozapine [1]. Up to one-third of patients with schizophrenia are classified as treatment-resistant [2]. The suggestion of ECT for treatment, however, continues to be met by the public (and some health professionals) with trepidation and resistance.

Questions surrounding the efficacy of ECT coupled with fears of its cognitive effects on patients have hindered its widespread use and acceptance in the treatment of schizophrenia. There are many negative connotations associated with the treatment, perpetuated in part by misinformation regarding the side effects and benefits to the treatment. While ECT is widely used in treating psychosis associated with general medical conditions, substance abuse, or mood disorder, the use of ECT for schizophrenic patients remains controversial. The American Psychiatric Association recommends the use of ECT as a primary treatment in catatonic schizophrenia, and as a secondary treatment in refractory schizophrenia [3]. The National Institute for Clinical Excellence recommends the use of ECT only as a last resort, dismissing its use in the general management of schizophrenia [4].

In most clinical trials and case studies, ECT is relegated to treatment refractory schizophrenic symptoms or psychotic patients with suicidality, catatonia, or aggression. Recent systematized trials have demonstrated the usefulness of ECT in treating patients with schizophrenia (particularly when combined with antipsychotic medication). Petrides et al [5] conducted an 8 week single blind randomized cross over design where 39 individuals were randomly assigned to two groups (ECT plus clozapine group, N =20; clozapine group, N =19). One group received Clozapine treatment for 8 weeks, and the other received a course of bilateral ECT in addition to Clozapine. ECT was administered × 3/week. Non-responders from the clozapine group received an open 8-week trial of ECT (cross over trial) with the same schedule and procedures as the randomized ECT plus clozapine group. The response rate as gathered by Psychosis subscale (BPRS) and CGI symptom severity scale was 50% in ECT plus Clozapine group and 47% in the cross over group.

In a Cochrane review of 26 trials of ECT in schizophrenia, ECT when combined with antipsychotics, results in rapid global improvement, reduction in symptoms, and greater clinical improvement than either monotherapy alone [6]. Research into continuation ECT (C-ECT) and maintenance ECT (M-ECT) with antipsychotic medication has also yielded promising results. A 2018 systematic review provided encouraging data on using Maintenance ECT (M-ECT) to prevent relapse in Schizophrenic patients who responded to acute treatment [7]. Thirty-seven publications were identified for inclusion searching through databases and using the following search terms: schizophrenia, schizoaffective, electroconvulsive therapy, ECT, maintenance, and continuation. Out of the 19 trials included only 2 were randomized controlled trials, others were retrospective chart reviews or open label trials and 18 were case reports. Review discusses the heterogenicity M-ECT which varied from weekly to every 4-week sessions; most studies used M-ECT in patients with refractory symptoms and relapse. Poor prognostic factors, such as higher BPRS scoresand lower GAF scores, earlier illness onset, more psychiatric admissions, and lower level of education, were considered as predictors of response and less likely to respond to M-ECT requiring more session between a shorter time course. The general consensus was cognitive effects were minimal and patients with Clozapine and acute course of ECT would respond better to M-ECT.

In a first ever qualitative study to identify biomarkers for ECT in depression, Jhang et al [9] report six grey matter regions with accuracy of 80% to 90% prediction of remission in 3 independent MDD samples. Although no biomarkers exist for prediction of ECT response in Schizophrenic

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patients, there exist a potential opportunity for future studies in this population. Comparison between ECT and antipsychotics revealed some overlap in mechanisms of action on dopamine and serotonin receptors, neurotrophic factors or immune system modulation [8].

Despite these scientific data disparities in the recommendation of ECT for treatment-resistant schizophrenia continue to exist among different groups. The question remains to be answered is *"Can ECT be used early on in treatment of Schizophrenia?"*. Besides waiting for multiple antipsychotic trials to fail there exists a risk of adverse events with antipsychotic medications.

There is also a concern for ECT and adverse effects such as confusion and retrograde amnesia. Cognitive deficits were assessed by CUSA et al [10] in prospective open study of 31 patients who received ECT as an augmentation treatment. The patients underwent a battery of neuropsychological testing and at baseline the mini mental status exam in these patients ranged from 23-30. ECT was administered × 3/week and the mean number of ECT treatments ranged from 7-14. The results were statistically significant for an improved immediate and delayed verbal memory, and Stroop's Interference test (executive functions/cognitive flexibility) with no deterioration in other domains of neurocognitive function.

There exists a plethora of studies and case reports on use of ECT in Schizophrenic patients. However current research in ECT trials suffer from variations in methodology, sample sizes, ECT techniques and procedure, heterogenicity in diagnosis and definitions of outcome. Regardless recent evidence of efficacy of ECT in acute and maintenance phases with lower risk of cognitive deficits gives physicians and patients alike hope that there is a place for ECT in treatment algorithms in schizophrenia.

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