



Electroconvulsive therapy in various psychiatric disorders: A Retrospective Study from North East India

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Abstract

Background: *Electroconvulsive therapy has been found to be effective treatment in Depressive disorder and in actively suicidal patient. This treatment has been also prescribed in different psychiatric disorders. Hence the objective of the study is to explore the various psychiatric diagnosis and indications of patients receiving ECT and is there any gender difference in the treatment sessions.*

Method: *Data of 28 Patients diagnosed as per ICD -10 criteria and advised for Brief pulse ECT are collected for the study. Unpaired t test is used for inferential statistics and P value <0.05 is considered significant in this study.*

Result: *Among the patients with psychiatric diagnosis receiving ECT; depressive disorder (35.73%) was highest followed by schizophrenia (25%). Majority cases indication of ECT was severe depression, suicidal attempt, psychosis and treatment resistant. The mean age difference between male and female was statistically significant (P<0.02237). Gender influence on ECT sessions was statistically not significant (P<0.2218).*

Conclusion: *Brief pulse ECT has been prescribed in various psychiatric diagnosis without any immediate adverse effect and gender has no influence on ECT sessions.*

Keywords: *Brief pulse ECT, Psychiatric diagnosis, Modified ECT, North East.*

Introduction

Electroconvulsive therapy is one of the most effective treatment in various psychiatric illness. It was introduced in the field of Psychiatry by Ugo Cerletti and Lucio Bini in 1938 and administered in catatonic patient^[1]. Although ECT is prescribed in Major depressive disorder as per various guidelines, but it is seen that ECT is also found to be effective in other psychiatric illness. ECT is

found to be effective in hippocampal neurogenesis and neuroplasticity^[2,3]. ECT was found to be superior to antidepressant drugs in depressive disorder according to UK based meta-analysis^[4]. ECT have a rapid onset of antisuicidal effect in case of unipolar depression and this effect was seen in case of bitemporal ECT^[5]. National Institute for Health and Care Excellence has recognized prolonged or severe mania as an

indication for ECT^[6]. ECT with brief pulse device under general anaesthesia have been used in our Institute for various psychiatric illness, hence this is the first study try to explore the various diagnosis and indications of psychiatric illnesses treated with Electroconvulsive therapy and is there any influence of gender in ECT treatment session.

Methodology

The retrospective study is carried out in a Tertiary care teaching hospital after obtaining ethical clearance from the Institutional Ethical Committee. Patient informations are collected from the ECT register book and patient case history sheet from 2016 to 2018. The cases are diagnosed as per ICD-10 Diagnosis criteria. The senior Psychiatrist advised for ECT treatment after detail assessment of the patient and informed consent is obtained from the patient and legal guardian. Brief pulse ECT under general anesthesia with muscle relaxant is given in this Institute every alternate day or thrice in a week by junior resident under supervision of senior resident and senior consultant. According to the clinical improvement of the patient number of ECT sessions has been determined. Pre ECT evaluation with relevant laboratory investigations and pre anaesthetic check up is done by anaesthesiologist. Patient is kept nil per orally six hours prior to ECT. All psychotropic medications are continued except benzodiazepine is withheld before ECT. The patient is preoxygenated with 100% oxygen at the rate of 5ml/min and premedication with glycopyrolate (5-10mcg/kg) to reduce the secretion. Induction is done with injection propofol along with oxygen and nitrous oxide (4:2). Succinylcholine is given through intravenous route (1-1.5/kg). Electrode placement used is bitemporal method. Modified ECT machine used in this Institute is a brief pulse ECT device RMS PC ECTON. Seizure is observed during ECT in the right arm for about 15 seconds and in EEG monitoring. Post ECT

recovery is monitored with cardiovascular and respiratory function until physiologically stable.

Aim and Objective of the study

1. To evaluate the various psychiatric diagnosis and indications in patients receiving ECT.
2. To assess influence of gender on ECT treatment.

Tools for Assessment

1. Clinicodemographic proforma to collect the patients information.
2. Tenth revision of the International Statistical Classification of Diseases and Related Health Problems criteria. (ICD - 10 Criteria)

Statistical analysis of data

Data analysis was done with both descriptive and inferential statistics. Unpaired t test has been used and a value of $p < 0.05$ was considered significant in this study.

Result

Table 1 shows the clinico demographic profile of the 28 patients. The table shows the patients gender, age, diagnosis, indications of ECT, ECT session and recovery from ECT. Indication of ECT in patient with Depressive disorder is suicidal attempt, psychotic symptoms, resistant depression, recurrent depressive disorder and past history of response to ECT. Patients with schizophrenia received ECT due to treatment resistant schizophrenia and acute exacerbation of paranoid schizophrenia. Patients with bipolar affective disorder received ECT due to severe depression and psychomotor retardation. One Patient with mania with psychosis received ECT due to poor response to medication. There is only one case of postpartum psychosis received ECT for speedy recovery. ECT sessions ranges from 2-8 sessions. It is observed that none of the patients have immediate post ECT adverse effect.

Table 1: Clinico Demographic profile of patients receiving ECT

Sex	Age(yrs)	Diagnosis	Indication	No of ECT Session	Recovery
M	32	Paranoid Schizophrenia	Acute Exacerbation	6	good
F	22	Recurrent depressive disorder	Current episode severe	6	good
M	35	Schizophrenia	Treatment resistant	6	good
F	45	Recurrent depressive disorder	Severe depression with suicidal idea	5	good
M	25	Catatonia	Catatonia	8	good
F	35	Schizophrenia	Treatment resistant	6	good
M	32	Bipolar affective disorder	Current episode severe depression	2	good
F	18	Severe depressive disorder	Multiple suicidal attempt	8	good
F	60	Schizophrenia	Treatment resistant	5	good
M	26	Bipolar affective disorder	Severe depression with psychomotor retardation	4	good
F	48	Severe depressive disorder	Severe depression with psychotic symptoms	8	good
F	29	Schizophrenia	Severe depression with suicidal idea	6	good
F	45	Severe depressive disorder	Severe depression with psychotic symptoms	5	good
F	22	Postpartum psychosis	Postpartum psychosis and for speedy recovery	5	good
M	30	Obsessive compulsive disorder with severe depression(OCD)	Treatment resistant OCD with severe depression	6	good
F	28	Bipolar affective disorder	Current episode mania with psychotic symptoms	3	good
M	24	Obsessive compulsive disorder(OCD)	Treatment resistant OCD	6	good
F	33	Severe Depressive disorder	Treatment resistant depression	6	good
M	29	Schizoaffective disorder	Schizoaffective disorder	4	good
F	45	Recurrent depressive disorder	Current episode severe depression, past history of response to ECT	6	good
F	53	Delusional disorder with severe depression	Suicidal attempt with past history of response to ECT	8	good
F	54	Severe depressive disorder	Severe depression with psychotic symptoms	6	good
F	49	Schizophrenia	Acute exacerbation	8	good
F	45	Recurrent depressive disorder	Current episode severe depression	6	good
M	36	Obsessive compulsive disorder(OCD)	OCD with psychosis	5	good
M	20	Schizophrenia with metabolic syndrome	Schizophrenia metabolic syndrome with depression	7	good
M	42	Severe depressive disorder	Severe psychomotor retardation with suicidal ideas	6	good
M	26	Catatonia	Catatonia	5	good

On evaluation it was found that out of 28 patients with various psychiatric diagnosis, Schizophrenia constituted 7(25%), Depressive disorder 10(35.73%), Catatonia 2(7.23%), Obsessive Compulsive Disorder 3(10.73%), Delusional

Disorder 1(3.5%), Bipolar Affective Disorder 3(10.73%), Schizoaffective Disorder 1(3.5%) and Postpartum Psychosis 1(3.5%). (Table 2)

Table 2: Percentage of different Psychiatric diagnosis received ECT

Psychiatric Diagnosis	Total Number(28)	Percentage
Schizophrenia	7	25
Depressive disorder	10	35.73
Obsessive Compulsive Disorder	3	10.73
Bipolar Affective Disorder	3	10.73
Catatonia	2	7.23
Schizoaffective Disorder	1	3.5
Delusional Disorder	1	3.5
Postpertum Psychosis	1	3.5

Table 3 shows the total no of male and female population those who received ECT. No of male and female patients are 12 (42.85%) and 16

(57.14%) respectively. Mean age of male patient is 29.8 SD 6.07 Years and mean age of female patient is 39.4 SD 12.76 years. An the difference is statistically significant (*P* value 0.0237). Mean ECT session in male and female is 5.4 SD 1.56 and 6.1 SD1.39 respectively. And when both group are compared the difference is statistically not significant (*P* value 0.2218). When various psychiatric diagnosis are divided according to gender it is found that, in schizophrenic group 3(25%) are male and 4(25%) are female, Depressive disorder 1(8.3%) patient is male and 9 (56.25%) are female. Two female patients with depression have past history of receiving ECT and history of response to ECT.

Table 3: Gender and Age difference with respect to ECT

	Male n=12(42.85%)	Female n=16(57.19%)	<i>t</i>	<i>df</i>	<i>p value</i>
Age in Years (±SD)	29.8 (±6.07)	39.4 (±12.76)	2.4021	26	0.0237 s
Mean ECT Session	5.4(±1.56)	6.1 (±1.39)	1.2518	26	0.2218 ns
Past history of ECT	0	2			
Schizophrenia	3 (25%)	4(25%)			
Depressive disorder	1(8.33%)	9 (56.25%)			
Obsessive Compulsive Disorder	3	0			
Bipolar Affective Disorder	2 (16.67%)	1(6.25%)			
Catatonia	2	0			
Schizoaffective Disorder	1	0			
Delusional Disorder	0	1			
Postpertum Psychosis	0	1			

s=significant ; ns = not significant; *df*= degree of freedom

Discussion:

Our study found that 28 patients with various psychiatric disorder received ECT between 2016 and 2018. Depressive disorder patient was found to be highest followed by Schizophrenia, OCD, BPAD, Catatonia, Schizoaffective disorder and Post pertum psychosis. Similarly a longitudinal study on ECT on various psychiatric disorder was done from north India and reported that Depressive disorder was 40% followed by Schizophrenia (10%), OCD (10%) and BPAD II (10%)^[7]. The indication of ECT in this study for Depressive disorder was presence of suicidal ideas, suicidal attempt, presence of psychotic symptoms, treatment resistant depression and recurrent depressive disorder. Bitemporal

electroconvulsive therapy have rapid onset of action and improved suicidality in these patients. Kellner and colleagues also reported that rapid improvement from suicidal intent after Bitemporal ECT treatment^[5]. A retrospective cohort study also found that reduced suicidality in Depressive disorder on ECT when compared with antidepressant drug treatment^[8]. Similarly indication of ECT in psychotic depression is documented by various studies^[9,10]. According to American Psychiatric Association Practice Guidelines, ECT is a first line treatment in Depression with psychotic symptoms^[11]. The schizophrenia patient receiving ECT in our study was due to treatment resistant and due to acute exacerbation of symptoms. Goswami et al

reported that treatment with bitemporal brief pulse ECT in 15 neuroleptic resistant outpatients schizophrenic patients^[12]. The recent versions of World Federation Societies of Biological Psychiatry guidelines recommend ECT treatment for treatment resistant schizophrenia^[5]. The United Kingdom National Institute for Health and Care Excellence (NICE) guidelines mentioned regarding effectiveness of ECT in acute episode of Schizophrenia^[6]. Because ECT was considered in Schizophrenia when the aim of treatment was to rapid symptom reduction along with antipsychotic medication. This combination was found to be superior to antipsychotic alone^[13]. In this study the patients with schizophrenia were also on antipsychotics drugs during ECT sessions.

In our study one patient with Mania with psychotic symptoms received ECT due to poor clinical response to pharmacotherapy and for speedy recovery. Bitemporal brief pulse ECT has been given to Mania with pharmacotherapy poor responder inpatients by Mohan et al^[14].

According to NICE guidelines ECT may be used to treat severe or prolonged manic episode^[5]. Two patients with catatonia received ECT in our study. Mc Call demonstrated that Catatonic patients symptoms resolves with combination of medication and ECT^[15]. In this study 3(10%) of OCD patient received ECT due to severe depression with resistant OCD and Psychosis. Similar indication for ECT in OCD has been reported in a retrospective study by Natalia et al^[16]. There was one case of postpartum psychosis who received five sessions of ECT in this study. A naturalistic prospective study from India, reported the safety and efficacy of ECT in 34 patients with postpartum psychosis^[17].

No of male patients 12 (42.85%) was lower than the female patients 16 (57.14%) in our study in contrast to Yuman et al where more no of male patients than female patients(21:19) in their sample^[7].

The mean age difference between male and female was statistically significant in this study (p value 0.0237). It may be due to more female

unipolar depression patient (35.75%) in the group and Unipolar depression is the most frequent indication for ECT.

The second objective of our study was whether gender has influence on ECT and we compared mean ECT sessions between male and female patients irrespective of diagnosis. But no statistically significant difference was noted. Hence it was observed that gender has no influence on ECT session in this study. A study from south India compared ECT sessions between male and female patients across psychiatric diagnosis and reported that no gender difference between the groups^[18]. In this study two female patients had past history of treatment with ECT. It could be additional indications for ECT to the patients although current indication of ECT was due to suicidal attempt. The post ECT recovery of all patients were found to be uneventful in our study. Regarding few no of ECT sessions (2 to 3) in two cases of BPAD was found but the reason for few sessions ECT could not be commented due to lack of information in the records.

Limitation of the study

Post ECT cognitive side affect was not monitored and being a retrospective study couldn't be commented. No rating scale was used to monitor the response to ECT.

Strength of the study: This is the first study in this Institution to explore the various psychiatric diagnosis and indications of ECT and results of the study conforms with the studies from other parts of our country as well as different parts of the world

Conclusion

The present study has found that among the various psychiatric disorder, Depressive disorder had highest indications for ECT and two female patients had previous history of ECT treatment. Majority of the other psychiatric disorder received ECT due to severe depression. A longitudinal

prospective study with pre and post ECT monitoring will help better understanding of effectiveness of brief pulse ECT in these populations.

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Declaration of interest: None

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