ORIGINAL ARTICLE

Electroconvulsive Therapy in Patients of Acute Mania Admitted in General Hospital

Dhiraj Kandre[1*], Pratik Sharma[2]

[1]MD Psychiatry, Assistant Professor, [2]MD Psychiatry Consultant Psychiatrist, Psychiatry Department, GMERS Medical College, Himatnagar

ABSTRACT

BACKGROUND: Despite the introduction of new psychotropic and mood stabilizers, in India, Electroconvulsive therapy (ECT) is widely used in treatment of mania. We intended to study clinical factors and outcome in patients of mania admitted in general hospital receiving ECT. **METHOD & MATERIAL:** Retrospective case note review was carried out of all patients of mania admitted in hospital in 1 year from July 2012 to June 2013. . Patients' case papers and ECT records were used to obtain the socio-demographic, clinical and ECT related information using a semi-structured Performa.Clinical Global Impression Scale for severity (CGI-S) and improvement (CGI-I) were applied on admission and discharge of patients respectively. **RESULTS:** Total 153 patients of acute mania were hospitalized out of which 63 (41.18%) received ECT along with medications and 90 (58.82%) were treated only with medications. Type of mania, past history of ECT, duration of current episode, hospital stay, CGI S and CGI I were significantly associated with ECT prescription in patients with acute mania. **CONCLIUSION:** Significant number of patients admitted in tertiary care hospital for acute mania, are given ECT for higher severity of illness, with longer duration of episode, psychotic symptoms and past positive history of ECT. ECT brought significant amount of improvement but also increased hospital stay.

Key words: Electroconvulsive therapy, mania, Clinical Global Impression Scale for severity, Clinical Global Impression Scale for improvement

INTRODUCTION

Cerletti and Bini, first introduced Electroconvulsive therapy in 1938. Introduction of ECT changed the way mentally ill patients were treated. Before the era of neuroleptics and mood stabilizers, ECT was considered mainstay of treatment for several psychiatric disorders like schizophrenia, mania and Depression. ECT is still widely used and effective treatment in management of severe psychiatric disorders including affective disorder.[1-4]

Prior to introduction of neuroleptics and mood stabilizers, ECT was mainstay of treatment of bipolar affective disorder (BAD). But introduction of new neuroleptics and mood stabilizers in treatment of BAD and controversies surrounding ECT lead to decreased use of ECT as treatment modality in BAD. Western treatment guidelines for BAD recommend very low use of ECT in their algorithm.[5-12]

Despite new neuroleptics and mood stabilizers, there are treatment resistant cases of BAD, having rapid cycling, residual symptoms, suicide attempts and socio-occupational impairment[13]. Which suggest ECT is still important as treatment choice in BAD. In India, after Depression and Schizophrenia, Mania are most common indications of ECT[14]. Similar trends have been reported in Asian countries[15]. In mania, ECT have shown 80% effectiveness in terms of remission or marked clinical improvement.[16] In comparison to lithium, chlorpromazine and haloperidol, ECT have been proved equal or at times more efficacious.[17-24]

There is lack of data regarding clinical factors and outcome associated with use of ECT in mania from central Gujarat. So we attempt to study clinical factors and outcome in patients of mania receiving

Corresponding Author:
Dr. DhirajKandre
C/806, Ishwarbaug society,
arbudanagar,odhav
Ahmedabad - 382415
Contact No: 9428871335, 9687633128
Email: kandre.d.j@gamil.com

ECT in comparison to patients of mania who are only on medication.

METHOD & MATERIAL

Study was carried out at a tertiary care hospital in Ahmedabad. All patients admitted in hospital go under detailed assessment under supervision of senior consultant and diagnosis is made by Diagnosis and Statistical Manual 4 Text Revised. (DSM 4 TR). Consultant in charge of the patient would take the final decision regarding administration of ECT after reviewing patient's clinical status and past history of treatment response. However no mandatory guidelines are followed regarding administration of ECT. If ECT is clinically indicated written informed consent is taken from patient or relatives. Patient undergoes physical assessment and investigations as required and also assessed by anesthetist. If found fit, the patient is administered brief-pulse, bilateral, modified ECT. Modified ECT is administered using an indigenously manufactured brief-pulse, current energy machine. Electrical dose is calibrated in joules (36-135j). The machine has settings for adjusting electric current passed (0.1-5 seconds with increments of 0.1 second), frequency between 20-90 Hz and adjusting pulse width 0.1 to 1.5 seconds. Electrical dose is varied by changing duration of current while keeping the frequency and pulse width constant. The initial duration of current is kept at 0.8 seconds. If patient does not have adequate response (motor seizure of 15 seconds), the duration is increased in increments of 0.1-0.2 seconds until the patient achieves a seizure of adequate duration. A maximum of three stimuli are usually given during the initial session to determine seizure threshold. Electrical dose is adjusted in subsequent sessions to compensate for the rise in seizure threshold and fall in seizure duration. ECT is given thrice a week in a patient by trainee resident under supervision of consultant. Atropine (0.2-0.3mg) is used as premedication, thiopental sodium (150-450 mg) for induction, and succinylcholine (30-60 mg) for muscle relaxation. Cuff method is used to estimate seizure duration and 15 seconds of motor seizure is considered to be an effective ECT. The patient is assessed daily by senior consultant and recorded in case notes. ECT is stopped either when remission is achieved or when symptoms reach plateau of improvement after two consecutive ECT or if patient develops major complication during ECT. All sedative agents' dose is reduced before ECT and others drugs are stopped only if they are judged to be interfering with ECT. Retrospective case note review was carried out of all patients of mania admitted in hospital in 1 year from July 2012 to June 2013. By reviewing case notes, socio-demographical and clinical details were collected. Patients' case papers and ECT records were used to obtain the socio-demographic, clinical and ECT related information using a semi-structured Performa. Two of the authors (DK and PS) independently applied the Clinical Global Impression Scale for severity (CGI-S) and improvement (CGI-I) to ten patients (not included in the study) based on case notes, with good inter-rater reliability (intra-class correlation coefficient >0.8). CGI-S was applied for the day of patient's admission and CGI-I for the day of discharge. The case notes of patients included in the final analysis were rated by only one author (DK). Once the ratings were completed for all patients, the same rater (DK) re-rated ten cases included in the study, with excellent intra-rater reliability (intra-class correlation coefficient >0.9).

Descriptive statistics were used to describe the data (frequency and percentage for categorical variables; mean and standard deviation for continuous variables). Comparative analysis was done between subjects who received ECT and those who did not using independent-samples t test and chi-square test for categorical and continuous variables respectively. SPSS 20.0 was used for statistical analysis.

RESULTS

Table 1: Socio-demographical variables in patients of acute mania

	ECT given N= 63 n(%) or mean(±SD)	ECT not given N=90 n(%) or mean(±SD)	Pearson chi square(X^2) or t value Mann Whitney u	Significance (P value)
Age	32.98(±19.69)	37.17(±14.17)	T = - 2.033	0.044
Gender				
Male	40(63.5%)	50(55.6%)	X^2 =0.96	0.33
Female	23(36.5%)	40(44.4%)		
Domicile				
Rural	7(11.1%)	22(24.4%)	X^2 =4.29	0.39
Urban	56(88.9%)	68(75.6%)		
Education (years)	6.65(±3.26)	5.37(±3.32)	T = 2.37	0.019
Religion				
Hindu	53(64.1%)	65(72.2%)	X^2 =4.52	0.21
Muslim	9(14.1%)	23(25.6%)		
Others	1(1.6%)	2(2.2%)		
Occupation				
Employed	42(66.72%)	48(53.3%)	X^2 =2.72	0.099
Unemployed	21(33.3%)	42(46.7%)		
Marital status				
Married	42(66.71%)	64(71.1%)	X^2 =0.34	0.56
Unmarried	21(33.3%)	26(28.9%)		
Family type				
Joint	31(49.2%)	59(65.6%)	X^2 =4.09	0.43
Nuclear	32(50.8%)	31(34.4%)		

Total 153 patients of acute mania were hospitalized out of which 63 (41.18%) received ECT along with medications and 90 (58.82%) were treated only with medications. Age and education were significantly associated with ECT. Gender, domicile, religion, occupation, marital status and family type was not found to be significant.

Table 2: Clinical variables in patients of acute mania

	ECT given N= 63 n(%) or mean(±SD)	ECT not given N=90 n(%) or mean(±SD)	Pearson chi square(X^2) / t value/Mann Whitney U	Sign. (P value)
Type of mania				
Mania without Psychotic feat.	14(22.2%)	53(58.9%)		
Mania with Psychotic feat.	49(77.8%)	37(41.1%)	X^2 = 20.24	<0.001
Past history of ECT taken	37(58.7%)	29(32.2%)	X^2 = 10.62	<0.001
Family history of mania	21(33.3%)	22(24.4%)	X^2 = 1.45	0.229
Family history of other psychiatry illness	9(14.3%)	12(13.3%)	X^2= 0.028	0.866
History of other medical illness	14(22.2%)	30(33.3%)	X^2 = 2.23	0.14
Total duration of illness (years)	8.31(±8.36)	7.81(±8.42)	U = 2726.5	0.69
Duration of current episode(months)	1.66(±1.32)	1.21(±1.70)	U = 1870.5	< 0.001
Hospital stay (days)	15.83(±5.38)	9.02(±5.21)	T = 7.84	<0.001
Number of past episodes	2.95(±2.37)	3.19(±3.05)	U = 2825.5	0.97
CGI S	5.19(±0.78)	4.21(±0.76)	T = 7.78	<0.01
CGI I	1.40(±0.58)	1.62(±0.69)	U = 2344.5	0.039

Type of mania, past history of ECT, duration of current episode, hospital stay, CGI S and CGI I were significantly associated with ECT prescription in patients with acute mania.

Table 3: Treatments given to patients of acute mania

	ECT given N= 63 n(%) or mean(±SD)	ECT not given N=90 n(%) or mean(±SD)
Medications		
Mood stabilizer	63(100%)	90(100%)
Antipsychotics	62(98.4%)	82(91.1%)
Anticholinergic	34(54%)	17(18.9%)
Benzodiazepines	61(96.8%)	89(98.9%)
Numbers of ECT	5.29(±1.3)	-
Days before ECT	2.54(±1.83)	-

Table 4: Indications of ECT

Indication for ECT	N (%)
To augment drug therapy	20 (31.7%)
ECT found effective earlier	16 (25.4%)
Cannot afford to wait for drug effect	13(20.6%)
Drug administration problem	7 (11.1%)
Drug therapy failed	4 (6.3%)
ECT as 1st line therapy	3 (4.8%)

As seen in table 3, all patients received mixer of mood stabilizers, antipsychotics, anticholinergic and benzodiazepines. Mean number Of ECTs were 5.29 and mean days before starting ECT were 2.54. Major indication of prescription of ECT was for augmentation of drug therapy

(31.7%) and as ECT was found effective earlier. (25.4%)

DISCUSSION

In this study, out of 153 patients admitted for acute mania, 63 of patients were given ECT as a modality of treatment along with medications. 41% of patients received ECT which seems high, similar to finding from other studies from India which shows higher use of ECT in patients of mania India as compared to western countries, probably to reduce hospital stay[25, 26]. But in our study hospital stay was significantly longer in ECT given patients than patients who were given only medications. Similar results were seen in a study by Volpe et al 2003[27] in which longer hospital stay in ECT patients was due to delay in starting ECT. But in our study, after removing days before starting of ECT also hospital stay was found to be longer in ECT given patients.

In this study, ECT prescription was found significantly associated with higher educated patients which could be due to less stigmatizing attitude towards ECT in educated groups. Age of patients who received ECT was significantly lower than non ECT patients which could be due to more severity of mania in younger patients requiring ECT as modality of treatment along with medications.

49 (77.8%) patients who were given ECT, received diagnosis of mania with psychotic symptoms and had a significantly higher severity on CGI-S. Similar trend has been seen in study by Mohammadbeigi et al 2011[27] and Bharadwaj et al 2013.[29] Similar to this studies, significantly higher improvement on CGI-I was seen in patients of acute mania who received ECT. Thus ECT group had higher severity of manic symptoms than non-ECT group and ECT brought about higher improvement than medication alone.

Past history of ECT was significantly associated with ECT prescription as past history of good response to ECT was an indication for prescribing ECT in 25.4% of ECT given patients.

Our study is limited by retrospective design, small sample size and duration.

In conclusion, significant number of patients admitted in tertiary care hospital for acute mania, are given ECT for higher severity of illness, with longer duration of episode, psychotic symptoms and past positive history of ECT. ECT brought significant amount of improvement but also increased hospital stay.

REFERANCES

1. Weiner R. The Practice of Electroconvulsive Therapy: Recommendations for Treatment, Training, and Privileging (A Task Force Report of the American Psychiatric Association). American Psychiatric Association Committee on Electroconvulsive Therapy. 2nd ed. Washington, DC: American Psychiatric Association, 2002.
2. Abrams R. Electroconvulsive Therapy. 4th ed. Oxford: Oxford University Press, 2002.
3. Barekatain M, Jahangard L, HaghighiM,Ranjkesh F. Bifrontal versus bitemporal electroconvulsive therapy in severe manic patients. Journal of ECT 2008; 24:199-202.
4. Rey JM, Walter G. Half a century of ECT use in young people. American Journal of Psychiatry 1997; 54:595-602.
5. American Psychiatric Association. Practice guideline for the treatment of patients with bipolar disorder (revision). Am J Psychiatry 2002; 159 (suppl4):1-50.
6. GoodwinGM,YoungAH.TheBritishAssociationforPsychopharmacology guidelinesfortreatmentofbipolardisorder:Asummary.JPsychopharmacol 2003;17(suppl4):3-6.
7. Grunze H, Kasper S, Goodwin G, Bowden C, Baldwin D, LichtRW, *et al*. World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for biological treatment of bipolar disorders, Part I: Treatment of bipolar depression. World J Biol Psychiatry2002; 3:115-24.
8. Grunze H, Kasper S, Goodwin G, Bowden C, Baldwin D, LichtRW, *etal*.TheWorldFederationofSocietiesof BiologicalPsychiatry(WFSBP)

guidelines for the biological treatment of bipolar disorders, Part II: Treatment of mania. World J Biol Psychiatry2003; 4:5-13.
9. KusumakarV,YathamLN,HaslamDR,ParikhSV,MatteR,SilverstonePH, *etal*.Treatmentofmania,mixedstate,andrapidcycling.CanJPsychiatry 1997; 42(suppl2):79S-86S.
10. MalhiGS, MitchellPB, Salim S. Bipolardepression: Managementoptions. CNS Drugs2003; 17:9-25.
11. Sachs GS, Printz DJ, Kahn DA, Carpenter D, Docherty JP. The expert consensus guideline series: Medication treatment of bipolar disorder 2000. Postgrad Med 2000; Spec. No.1-104.
12. SuppesT, Rush AJ, Dennehy EB, Crismon ML, Kashner TM, TopracMG, *et al*. Texas Medication Algorithm Project, phase 3 (TMAP-3): Clinical results for patients with a history of mania. J Clin Psychiatry 2003; 64:370-82.
13. Isasi AG, Echeburúa E, Limiñana JM, González-Pinto A. How effective is a psychological intervention program for patients with refractory bipolar disorder?Arandomizedcontrolledtrial.J AffectDisord2010; 126:80-7.
14. ChanpattanaW, Kunigiri G, Kramer BA, Gangadhar BN. Survey of the practice of electroconvulsive therapy in teaching hospitals in India. JECT 2005; 21:100-4.
15. ChanpattanaW, Kramer BA, Kunigiri G, Gangadhar BN, Kitphati R, Andrade C. A survey of the practice of electroconvulsive therapy in Asia. J ECT2010; 26:5-10.
16. Mukherjee S, Sackeim HA, Schnur DB. Electroconvulsive therapy of acute manic episodes: A review of 50 years' experience. Am J Psychiatry 1994; 151:169-76.
17. Thomas J, Reddy B. The treatment of mania: A retrospective evaluation of the effects of ECT, chlorpromazine, and lithium. J Affect Disord 1982; 4:85-92.
18. Alexander RC, Salomon M, Ionescu-Pioggia M, Cole JO. Convulsive therapy in the treatment of mania: McLean Hospital 1973-1986. ConvulsTher1988; 4:115-25.
19. Black DW, Winokur G, Nasrallah A. Treatment of mania: A naturalistic study of electroconvulsive therapy versus lithium in 438 patients. J Clin Psychiatry1987; 48:132-9.
20. Strömgren LS. Electroconvulsive therapy in Aarhus, Denmark, in 1984: Its application in nondepressive disorders. ConvulsTher1988; 4:306-13.
21. Small JG, Klapper MH, Kellams JJ, Miller MJ, Milstein V, Sharpley PH, *etal*.Electroconvulsivetreatmentcomparedwithlithiuminthemanagement of manic states. Arch Gen Psychiatry1988;45:727-32.
22. Sikdar S, KulharaP, Avasthi A, Singh H. Combined chlorpromazine and electroconvulsive therapy in mania. Br J Psychiatry1994; 164:806-10.
23. MukherjeeS,DebsikdarV.Unmodifiedelectroconvulsivetherapyofacute mania:Aretrospectivenaturalisticstudy. ConvulsTher1992; 8:5-11.
24. Mukherjee S, Sackeim HA, Lee C. Unilateral ECT in the treatment of manic episodes. ConvulsTher1988; 4:74-80.
25. SikdarS,KulharaP,AvasthiA,SinghH.Combinedchlorpromazineandelectroconvulsive therapy in mania. Br J Psychiatry 1994; 164:806-10.
26. AgarwalAK, AndradeC, ReddyMV.ThepracticeofECTinIndiaI.IndianJ Psychiatry 1992; 34:285-97.
27. Volpe FM, Tavares A. Impact of ECT on duration of hospitalizations for mania. Journal of ECT 2003; 19:17-21
28. H Mohammadbeigi, S Alizadegan, M Barekatain.Electroconvulsive therapy in single manic episodes: a case series. Afr J Psychiatry.2011 Mar;14(1):56-9
29. Bharadwaj V, Grover S, Chakrabarti S, Avasthi A, Kate N. Clinical profile and outcome of bipolar disorder patients receiving electroconvulsive therapy: A study from north India. Indian J Psychiatry 2012; 54:41-7