Original Article

# A study of various side effects of combined ECT plus pharmacotherapy in psychiatric patients

Nitin P Patil[1*], M S V K Raju[2], Nilesh M Naphade[3], Sudhir J Gaikwad[4], Aditi N Patil[5], Abhishek Kumar[6]

{[1]Assistant Professor, [4]Professor & HOD, Department of Psychiatry} {[5]Tutor & PG student, Department of Pharmacology}
Bharati Vidyapeeth Deemed University Medical College and Hospital, Sangli, Maharashtra, INDIA.
[2]Professor & HOD, Department of Psychiatry, People's College of Medical Science & Research Centre, Bhanupur, Bhopal, Madhya Pradesh, INDIA.
[3]Professor, Department of Psychiatry, Bharati Vidyapeeth Deemed University Medical College Pune, Maharashtra, INDIA.
[6]Senior Resident, Department of Psychiatry, Rajendra institute of Medical Sciences, Ranchi, Jharkhand, INDIA.
**Email:** drnitinpatil@gmail.com

## Abstract

**Introduction**: D. N. Nandi (1950) was perhaps the first in India who documented physical and psychological side effects of Electroconvulsive Therapy. Only 6% of his 150 patients had physical complications like dislocations (N:7) fracture spine (N=1) and status epileptics (N=1) . A total of 1808 ECT's were given to these patients with an average of 12 treatments per patient. Lauritzen *et al* found better acute response of depression to ECT and imipramine while paroxetine and ECT was better for relapse prevention **Aims and Objective:** To study Various Side Effects of Combined ECT plus Pharmacotherapy in Psychiatric Patients **Methodology**: This was clinical trial study in 50 patients who have been prescribed psycho -pharmacological agents and ECT formed the study group. 50 patients undergoing treatment with drugs only formed the control group: only those diagnostic categories for which ECT are prescribed were selected for control. **Result:** Both the study and control subjects have gained weight significantly. (P = < 0.001). However there is no statistically significant difference between the groups at the beginning and at termination of study. The side effects in respect of both groups can be categorized into 5 broad groups i.e. sedation, sleep disturbances, excessive dreams, sexual difficulties, thirst and polydipsia and tremors. Sexual difficulties are highlighted by both groups. 18 out of 50 study group patients complained of memory disturbances (36%) at week 3 (T2) post treatment, while none in the control group complained of memory disturbances at T3.**Conclusion:** In conclusion it can be said that ECT alone can be a safer option in acute and maintenance therapy paradigms in those who are obese or gaining weight under pharmacotherapy .Combined ECT and pharmacotherapy offers the advantage of rapid clinical recovery with no extra burden of physical side effects.

**Keywords:** ECT, Side effects of ECT.

[*]**Address for Correspondence:**
Dr. Nitin P Patil, Assistant Professor, Department of Psychiatry, Bharati Vidyapeeth Deemed University Medical College and Hospital, Sangli, Maharashtra, INDIA.
**Email:** drnitinpatil@gmail.com
Received Date: 05/01/2015 Revised Date: 24/09/2015 Accepted Date: 12/10/2016

| Access this article online | |
|---|---|
| Quick Response Code: | Website: www.medpulse.in |
| | DOI: -- |

## INTRODUCTION

D. N. Nandi (1950)[1] was perhaps the first in India who documented physical and psychological side effects of Electroconvulsive Therapy. Only 6% of his 150 patients had physical complications like dislocations (N: 7) fracture spine (N=1) and status epileptics (N=1). A total of 1808 ECT's were given to these patients with an average of 12 treatments per patient. All the ECT's were sine wave and given, as it appears, without muscle relaxants. He remarked that apart from the above, headache, pain in the muscles and restlessness was quite common. It is estimated that the incidence of serious complications in ECT is about 1:1800 patients and the risk of death is 1:10,000 patients. The incidence of former

is same as that of comparable general population. Myalgias are quit common (Joan Prudic 2005)[4]. Headache may occur in 30 to 50% of patients (Joan Prudic 2005[4], Abram 2002[8]). ECT emergent dyskinesias (Liberzon *et al*, 1992)[54] prolonged seizures lasting more than 180 seconds , which may occur in 1% - 2% of cases, (McCreadle 1989)[55] are some of the uncommon physical complications that may occur in electroconvulsive therapy. Concomitant ECT and antidepressant drugs noted to have better effect in depression (Royal College of Psychiatrists)[80]. Lauritzen *et al*[81] found better acute response of depression to ECT and imipramine while paroxetine and ECT was better for relapse prevention. Combination of fluoxetine or citalopram and ECT found to produce no adverse effects (Popakostas *et al* 2000)[82]. Similarly, venlafaxine and ECT was found to be safe as far as adverse effects are concerned (Bernardo *et al* 2000)[83]. Present study is done to study the various side effects and safety of ECT plus Pharmacotherauptic agents in psychiatric patients.

## MATERIAL AND METHODS

The study was conducted over a period of two years at a teaching hospital in the Department of Psychiatry having 30 bed indoor facility, daily outpatient facility and round the clock emergency services with fully equipped Electroconvulsive Therapy unit. 50 patients who have been prescribed psychopharmacological agents and ECT formed the study group. 50 patients undergoing treatment with drugs only formed the control group: only those diagnostic categories for which ECT are prescribed were selected for control. Both groups were matched for sex, age and education. Persons who had ECT within the past one year and those having neurological deficits, serious physical illnesses, mental retardation or dementia have been excluded from the study. Detailed evaluation was carried out clinically and by means of UKU scale. Pre treatment evaluation was carried out one day before ECT treatment and post treatment evaluation was carried out at week 3 and 7. All the findings were recorded using UKU Scale (Ling Jaerde *et al* 1987)[23], this is a 26 item observer rated scale designed to measure drug and adverse reactions[23].

## RESULTS

**Table 1:** BMI

| | | Before | After |
|---|---|---|---|
| Control | X | 23.45 | 23.91 |
| | SD | 2.51 | 2.46 |
| Study | X | 23.57 | 24 |
| | SD | 2.32 | 2.35 |

Paired t: 11.6, P < 0.001, Paired t : 12.41, P < 0.001, t : 0.25 t : 0.3. Table 1, within the group both the study and control subjects have gained weight significantly. (P = < 0.001). However there is no statistically significant difference between the groups at the beginning and at termination of study (p>0.05)

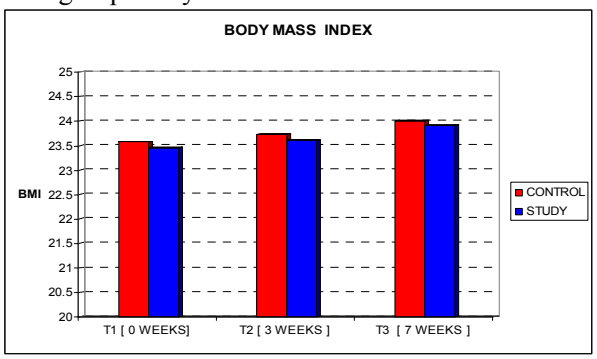


**Table 2:** U.K.U. Side Effect Scale

| | | | | T1 | | | |
|---|---|---|---|---|---|---|---|
| **Symptoms** | **Sedation** | **Sleep Disturb.** | **Memory** | **Dream** | **Sex** | **Polyuria / Polydipsia** | **Tremors** |
| Control | 0 | 0.14 (0.7) | 0 | 0 | 1.7 (0.95) | 0.3 (0.2) | 1 |
| Study | 0.44 (0.73) | 0.9 (0.7) | 0 | 0.2 (0.3) | 2.1 (1.6) | 0.3 (0.2) | 0 |
| | | | | **T2** | | | |
| Control | 1.0 (0.8) | 0.43 (0.8) | 0 | 0.70 (0.55) | 2.24 (1.37) | 0.7 (0.8) | 0.42 (0.5) |
| Study | 1.2 (0.63) | 1.0 (0.5) | 1.1 (0.3) | 1.2 (0.67) | 2.2 (1.47) | 1 (0.47) | 1 (0.8) |
| | | | | **T3** | | | |
| Control | 0 | 1.28 (0.9) | 0 | 1.57 (1.13) | 3.07 (1.25) | 1.14 (1.06) | 1 (0.8) |
| Study | 1.2 (0.73) | 1.4 (0.7) | 0 | 2.1 (0.3) | 3.6 (1.6) | 1.50 (0.2) | 1 (0.8) |
| Total | | **$T_1$** | | **$T_2$** | | **$T_3$** | |
| Control | | 7.6 [2.59] | | 9.68 [2.48] | | 17 [5.2] | |

| | | | |
|---|---|---|---|
| Study | 7.06 [2.48] | 8.8 [2.34] | 16.7 [7.42] |
| Mean | 7.06 | 8.8 | 16.7 |
| SD | 2.48 | 2.34 | 7.42 |
| $T_1$ Vs $T_2$ | t = 3.55 | DF 98 | P = < 0.001 |
| $T_1$ Vs $T_3$ | t = 4.41 | DF 98 | P = < 0.001 |

The side effects in respect of both groups can be categorized into 5 broad groups i.e. sedation, sleep disturbances, excessive dreams, sexual difficulties, thirst and polydypsia and tremors. Sexual difficulties are highlighted by both groups. 18 out of 50 study group patients complained of memory disturbances (36%) at week 3 (T2) post treatment, while none in the control group complained of memory disturbances at T3.

## DISCUSSION

There has been a surprisingly little information about the short term and long term consequences of combined pharmacotherapy and electroconvulsive therapy despite the fairly common practice of combining the two treatment modalities in the management of serious mental disorders in India. The present investigation is a prospective observational study designed to ascertain if the independent variable ECT has any positive or negative effect on the physical functions of the patients. In the present study the pharmacotherapy and pharmacotherapy + ECT group evenly matched for age, sex, educational status. The mean age of control and study group is 31.2 and 30.3 years respectively .Weight gain is an important and often distressing side effect of most of the psychotropic agents. The present study reveals that ECT does not contribute to the weight gain which could be seen from the fact that BMI remained same for both groups at the beginning as well as at the end point. However the rise of BMI (about 0.5) has been found to be highly significant in both groups. Pharmacotherapy obviously contributed to the weight gain. ECT could be a useful option as a sole treatment, perhaps followed by continuation and / or maintenance ECT in those who are obese or those who gained weight while on pharmacotherapy. The advantage that ECT offers in this area has not been highlighted by any reviewer (Abram 2002[11], Rudorfer 2003[12]) Physical side effects, though minimal overall , increased significantly in both groups post treatment . The side effects are mainly related to sedation, sleep disturbance, sexual difficulties, tremor and polydypsia. Von Kammen *et al*[13] reported that clozapine is better as far as the side effect of polydypsia is concerned. No patient of this study had clozapine hence findings of this study appears to corroborate that of Von Kammen *et al*[13]. There is no difference between the groups which indicates that ECT doesn't add to the side effect burden in this respect. Hardly anybody complained of headache and muscle pain. This is at variance with some studies in relation to ECT (Nandi[14], Tharyam[15]).

## CONCLUSION

In conclusion it can be said that ECT alone can be a safer option in acute and maintenance therapy paradigms in those who are obese or gaining weight under pharmacotherapy .Combined ECT and pharmacotherapy offers the advantage of rapid clinical recovery with no extra burden of physical side effects.

## REFERENCES


1. D.N. Nandi Complications of ECT .Ind. J. Neurology and Psychiatry Vol 11(2) 47-58; 1950
2. JoanPrudicElectroconvulsive Therapy in: Benjamin J, Sadock, Virginia A SadockEds.Comprehensive Textbook of Psychiatry Lippincot William and Wilkins. 2005 : PP 2968 – 2983
3. Abram R. Electroconvulsive Therapy Oxford University Press, New York 2002.
4. Liberzon I, Dequardo J R et al, Post ECT dyskinesia, prolonged apnea, Convuls Thir 7: 40 – 44, 1992,
5. Mc Creadle R G, Phillip S K et al, Is EEG Monitoring of ECT useful Br. J. Psychiatry 154: 229 – 231, 1989
6. Royal College of Psychiatrists: The ECT handbook 1995
7. LAURITZEN L, ODGARD K et al Relapse prevention by means of paroxatine on ECT treated patients Acta Psychiatrscand 94, 241-251, 1996
8. POPAKOSTASY, MARKIANOS M et al Administration of cetalopram before ECT. J. ECT 16, 38 - 42: 2000
9. BERNARDO M, NAVARROV V. et al Seizure activity and safety in combined treatment with Venlaflaxine and ECT.J. ECT 16, 38-42:2000
10. Ling Jaerde O, Ahlfors UG, Dencker SJ The UKU, side effect rating scale Acta Psychiat Scan 1987 : 76 ; 1 - 100
11. Abram R. Electroconvulsive Therapy Oxford University Press, New York 2002.
12. Matthew V. Rudorfer, Michel E. Henry, Harold A. Sackeim. Electroconvulsive Therapy in: Allen Tasman, Jerold Kay, Jeffery A. Lieberman Eds: Psychiatry, John Wiley and Sons Ltd, England, 2003 : PP 1865 – 1901
13. DANIEL P VON KAMMEN, S R MARDER Serotonin dopamine antagonists in Benjamin J Sadock and Virgenia A Sadock .Eds: Comprehensive Textbook of Psychiatry, William and Wilkins , Baltimore, USA 2005.
14. D.N. Nandi Complications of ECT Ind. J. Neurology and Psychiatry Vol 11(2) 47-58; 1950
15. PRATAP THARYAN, D J SAJU, SUNIL DATTA et al. Physical morbidity with. unmodified ECT : a decade of experience Ind. J. Psychiatry 35 (4) 211-214 ;1993



Source of Support: None Declared
Conflict of Interest: None Declared