

A STUDY OF EUPHORIC SYNDROMES ARISING WITH ECTManasvi Jariwala¹, Dharmesh Patel², Vaishal Vora³, Vinod Darji⁴**HOW TO CITE THIS ARTICLE:**

Manasvi Jariwala, Dharmesh Patel, Vaishal Vora, Vinod Darji. "A Study of Euphoric Syndromes Arising with ECT". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 22, June 02; Page: 6096-6104, DOI: 10.14260/jemds/2014/2709

ABSTRACT: BACKGROUND: ECT is mainstay therapy of various psychiatric disorders. It is best antidepressant available on the earth. As all antidepressant cause switch of Depression to Mania, ECT can cause the switch. **AIMS & OBJECTIVES:** To establish relationship between ECT & Euphoric Syndromes. To categorize Euphoria into transient Euphoria, Hypomania or Mania. **MATERIALS & METHODS:** The study was conducted in a general hospital setting in Psychiatry Department. Study subjects were the patient hospitalized & given 6 ECTs with diagnosis of Major Depressive Disorder & Schizophrenia. Young Mania Rating Scale (YMRS) & Hypomania Check List (HCL-32) were the tools applied at various time points. **RESULTS:** In the study, total 40 patients were taken, amongst which 24 were schizophrenia & 16 were MDD patients. At the end of 6 ECTs total 7 patients developed euphoric syndromes, amongst which 1 patient developed Mania, 3 patients developed Hypomania & 3 patients developed Euphoria. **CONCLUSION:** It's found that there is positive correlation between Euphoric Syndrome & ECT. 17.5% of subject sample developed Euphoric Syndrome.

KEYWORDS: ECT, Euphoria, Hypomania, Mania.

INTRODUCTION: Roots of Electro Convulsive Therapy are situated around the investigations of "Ladislaus Von Meduna" effects of camphor induced convulsion in schizophrenic patient.¹

Incremental advances in the technique of ECT have refined the treatment to the point that with high dose right unilateral ECT or moderate dose bifrontal or bitemporal with brief or ultra-brief pulse technique, many patient can now enjoy the full therapeutic benefits of ECT without prominent cognitive side effects which were so common with sine wave bitemporal ECT.¹⁻⁴

If we talk about EUPHORIA this word has its origin in Greek roots. "EU" means goodness happiness and "PHORIA" signifying the act of carrying happiness or joy.

In recent years Euphoria gained some point of attention because of use of certain narcotic drugs to produce euphoria.

As such ECT and Euphoria sensations concerned some scattered reports suggesting association between them are available. As such ECT is an accepted treatment of mania however, it is suggested that ECT can also elicit manic switch or as a side effect.

Hypomania characterized by lesser severity & duration of certain DSM-IV TR Diagnostic criteria. For Mania, duration of illness is at least 7 days. For Hypomania, it is less than 7 days but more than 4 days.

The fastest and most effective treatment of depression is none but ECT. It has been observed that most of the antidepressant drugs may cause manic switch in depressed patients. So considering it the hundred million dollar question is does ECT cause mania hypo mania or at least euphoria?

Relation between ECT and Euphoria is not yet well established, although scattered reports of ECT induce Euphoria, Hypomania or mania is there.⁵⁻⁸

ORIGINAL ARTICLE

Fewer than 10% of patients treated with ECT experience new affective symptoms and a small minority develop a manic syndrome. ECT facilitates dopaminergic neurotransmission by auto receptor down regulation and by postsynaptic up regulation. These may explain development of Mania with ECT, in the light of a hyper dopaminergic hypothesis for mania. However this is only one of many possible explanations.^{9, 10}

ECT induced mania has been suggested to represent a switch phenomenon in Bipolar illness but the causal role of ECT is difficult to establish. Mania has also been suggested to result as a side effect of ECT lasting for a few -days and remitting spontaneously and occurring either as depression lifts or in mid depression in later instance, if rechallenged with ECT may or may not re- elicit mania. ¹¹

AIMS AND OBJECTIVES:

- A. To establish relation between ECT and Euphoric syndromes.
- B. To categorize euphoria (if arises) into short term or transient Euphoria, Hypomania or Mania.

METHODOLOGY AND MATERIALS:

Setting: The study was conducted in a general hospital setting department of psychiatry which is attached to a medical college.

Subjects: Patient admitted in psychiatry ward YMRS<20 who are advised ECT and having diagnosis other than Bipolar mood disorder and Schizoaffective disorder. Subjects are given 6 ECT, on thrice a week basis. So duration between 2 consecutive ECT is maximum 2 days.

Exclusion Criteria:

- Patient having history of hypo manic or manic episode in past.
- Patient having history of substance abuse.
- Any unreliable history of psychiatric illness is excluded.-Patients who were given less than 6 ECTs
- Patient who cannot come for follow-up visits 1 week and 1 month after discharge from ward.

Time frame -1 January 2008 to 31 December 2008

With the help of guidance from seniors number of sample was decided (please mention possible explanation from document based not from senior)

Source was O.P.D. Patients whom were admitted and given 6ECTs.

STUDY FLOW (PROTOCOL):

INSTRUMENTS:

- 1) **Young Mania Rating Scale:** YMRS is one of most utilized scales for mania. The scale is having 11 items. There are 4 items which graded in to 0 to 8 and remaining 7 items are graded in to 0 to 4. YMRS ≥ 20 suggestive of mania. The scale is generally done by a clinician and takes 15-30 minutes time.

Application of Scale: At the time of admission.

- 3 hours after recovery from general anaesthesia.
- After each ECT (6 times).

ORIGINAL ARTICLE

- 1 week after completion of 6 ECTs.
- 1 month after completion of 6 ECTs.

NOTE: If any subject score touches positive boundary (≥ 20) for scale previous scale score was also noted to decide duration.

2) HCL-32 Questionnaire¹²: HCL-32 comprises a checklist of possible symptoms of hypomania that is rated yes or no by subject. It contains 32 questions and reply is yes or no. It is translated in various languages. Score in this scale ≥ 14 is suggestive of hypomania. This is very sensitive and satisfied for hypomania.

Application of HCL-32 Questionnaire:

- At the time of admission.
- 3 hours after recovery from general anaesthesia after each ECT simultaneously with YMRS.
- 1 week after completion of 6ECTs.
- 1 month after completion of 6 ECTs.

NOTE: If any subject score touches positive boundary (≥ 14) previous scale also noted to decide duration.

- 1) **1st Item of YMRS:** The first item of YMR S scale is more useful to describe Elevated Mood. So score ≥ 3 is some-what more indicative of short term or transient euphoria.

RESULT AND ANALYSIS: In our study total 40 patients were studied. From 40patients, 24 were having schizophrenia & 16 were having MDD. Male patients were 22 & Female patients were 18.

	3 RD	6 TH	1WEEK	1MONTH
YMRS ≥ 20	0	3(7.5%)	1(2.5%)	1(2.5%)
YMRS < 20	40	37(92.55)	39(97.55)	39(97.5%0

TABLE 1a: Distribution of patients according to YMRS scale

YMRS scale ≥ 20 were considered to find manic patients.

YMRS applied 9 times in one patient, but for statically as well as clinical significance YMRS applied at 3rd ECT, 1 week follow up and 1 month follow up visit were considered in tables. After 3rd ECT none of the patient got YMRS ≥ 20 . After 6th ECT 7.50% patients are having YMRS score ≥ 20 . On 1 week follow up visit 2.50% patients are having YMRS ≥ 20 and 1 month follow up visit 2.50% patients are having YMRS ≥ 20 .

ORIGINAL ARTICLE

DISORDER	SCEZOPHRENIA				MDD			
	3 RD	6 th	1wk	1mth	3 RD	6 th	1mth	1wk
YMRC SCORE ≥ 20	0	2	1	1	0	1	1	0
YMRC SCORE < 20	24	22	23	23	16	15	16	16

TABLE 1b: Distribution of patients according to YMRS and disorders

After PECT none patient got YMRS score ≥ 20 . After 6th ECT 2 patients of schizophrenia and 1 patient of MDD has YMRS ≥ 20 .

On 1 week follow up visit 1 patient of schizophrenia YMRS ≥ 20 , None of MDD patient got it after 1 month follow up 1 patient got YMRS ≥ 20 while none of MDD patient got YMRS ≥ 20 .

Hcl -32	3 rd	6 th	1week	1month
≥ 14	0	4	1	1
< 14	40	36	39	39

TABLE 2a: Distribution of patients according to HCL-32 score

According to HCL-32 division after 3rd ECT none got score ≥ 14 . After 6th ECT 4 patients got score ≥ 14 .

On 1 week follow up visit 1 patient got HCL-32 ≥ 14 .

On 1 month follow up visit 1 patient got HCL-32 ≥ 14 .

DISORDER	SCHIZOPHRENIA				MDD			
	3 RD	6 TH	1WK	1MTH	3 RD	6 TH	1WK	1MTH
HCL-32 ≥ 14	0	2	1	1	0	2	0	0
HCL-32 < 14	24	22	23	23	16	14	16	16

TABLE 2b: Disorder wise distribution of patients according to HCL-32 score

After 3rd ECT none of the disorder patient got score ≥ 14 .

After 6th ECT 2 schizophrenia patient and 2 MDD patients got score ≥ 14 .

On 1 week follow up visit 1 schizophrenia patient none of got score ≥ 14 .

On 1 month follow up visit 1 schizophrenia patient and none of MDD patient got score ≥ 14 .

ITEM 1 SCORE	1 ST ETC	2 ND ETC	3 RD ETC	4 TH ETC	5 TH ETC	6 TH ETC	1WEEK	1MONTH
≥ 3	0	0	1	1	4	7	1	1
< 3	40	40	39	39	36	33	39	39

TABLE 3a: Distribution of patients according to Item -1 score of YMRS

Item-1 is a good indicator of euphoria, especially short term or transient euphoria.

As such our study aims at arousal of euphoric symptoms and some reports of transient euphoria after ECT. In the following table patient distributed after each ECT Item-1 score.

Score of 3 or more (≥ 3) is cut off point to point out euphoria. After 1st and 2nd ECT none of patient scored ≥ 3 .

After 3rd and 4th ECT 1 patient each scored ≥ 3 .

After 5th ECT and After 6th ECT 7 patients scored ≥ 3 .

1 week and 1 month follow up 1 patient each scored.

ORIGINAL ARTICLE

ITEM1 SCEORE	SCHIZOPHRENIA								MDD							
	1 ST	2 ND	3 RD	4 TH	5 TH	6 TH	1WK	1MTH	1 ST	2 ND	3 RD	4 TH	5 TH	6 TH	1WK	1MTH
>=3	0	0	1	0	1	2	1	1	0	0	0	1	3	5	0	0
<3	24	24	23	24	23	22	23	23	16	16	16	15	13	11	16	16

TABLE 3b

Distribution of patients according to Item -1 score

After 3rd ECT-1 schizophrenia and 4th ECT 1 MDD patient scored >=3.

After 6th ECT-2 schizophrenia and 5 MDD patient scored >=3. After 1 week and 1 month follow up 1 schizophrenia in each visit scored >=3.

Item-1 score >=3 are manly distributed after 5th and 6th ECT, Manly distributed among MDD patient.

Item-1 score >=3 has its peak after 6th ECT.

Up to 4th ECT 1 week,

1 month follow up visit significant findings are almost negligible

Distribution of patients according to duration of euphoric symptoms in patients who shown positive results in previous tables.

DISORDER	NUMBER	MALE	FEMALE
SCHEZOPHRENIA	2	2	0
MDD	5	3	2
TOTAL	7	5	2

TABLE 4

1. From 2 schizophrenia patients 1 patient scored >=3RD and 6th ECT. Remaining other schizophrenia patients scored >=3 5th, 6th ECT and 1week, 1 month follow up visit.
2. From 5 MDD patient who scored >=3 on Item-1 score. One patient scored it on 6th ECT. One patient scored it on 4th, 5th and 6th ECT. One patient scored it only after 6th ECT. Two patients scored it after 5th and 6th ECT.

STUDY PATIENT	MENIA	HYPOMANIA	EUPHORIA
SCHEZOPHRENIA	1	1	0
MDD	0	2	3

Table 4a: Distribution according to type of Euphoric syndromes

SEX	EUPHORIA
MALE	1
FEMALE	2

Table 4b

ORIGINAL ARTICLE

SEX	HYPOEUPHORIA
MALE	1
FEMALE	2

Table 4c

NOTE1:

As detail of previous tables findings:

- Total patients developed euphoric syndromes 7.
- Patients who don't developed euphoric syndromes 33.

NOTE 2:

- Among patients who developed euphoric syndromes are Male-5, Female-2.
- Among patients who not developed euphoric syndromes are Male-17, Female-16,

NOTE 3:

- Among patients who developed euphoric syndromes are Schizophrenia patients-2 MDD-5
- Among patients who developed euphoric syndromes are Schizophrenia patients-20 MDD- 1 1

NOTE 4:

- As per Table 6-b Patients who developed mania Schizophrenia-1.
- Patients who developed hypomania Schizophrenia-1 MDD-2.
- As per Table 5-b, Table 8 and below mentioned notes-1) and 2). Among total 7 of patients developed euphoric syndromes Mania-1 Hypomania-3 Remaining 3 patients having euphoria only which is limited to mood Effect of ECT.

*** For all tables please mention all values along with percentage.

DISCUSSION: ECT has ability to induce manic switches is of both theoretical and clinical interest. All effective antidepressant treatments are capable of causing mood switches into mania in susceptible individuals. So that ECT can do so is well accepted, but literature on it is scant. In this section we are going to relate our study with that studies which were previously done.

(1) OCCURRENCE OF EUPHORIC SYNDROMES:

- a. Devanand and colleagues (1988) critically reviewed concept of distinguishing the development of the true mania or hypomania from organic euphoria induced by ECT. They carefully detailed the cases of two patients who developed mania and one patient who developed "Organic Euphoria" during ECT. They suggested that organic euphoria is characterized by increasing cognitive impairment and presence of inappropriate laughter. In the case of "Organic Euphoria" they suggested that additional ECT is given if depressive symptoms persist!^{5,6}
- b. Andrade C. (1988) reported appearance of a transient manic reaction in 4 of 32 patients of MDD. They noted that symptoms resolved without treatment in several days. So euphoric syndromes were occurred in 12.5% of sample!^{5,6}

ORIGINAL ARTICLE

- c. Angst done retrospective chart study over a thousand hospital admission for depression between 1920 to 1981, examined switch rate as a relation with diagnosis (unipolar depression, unipolar depression with psychotic features, bipolar depression), ECT and antidepressant treatment!⁷
They found increased rates with ECT in all three diagnostic groups, but no exact % known.
- d. Devanand presented data to support the view that mania and hypomania due to ECT is actually rare but exact % not known.⁸
- e. Lewis and Nasrallah (1986) cited 6.4% incidence of mania in MDD patient receiving ECT.⁸
- f. 1977 Slater and Roth and in 1982, Kalinowasky both describe hypomania secondary to ECT but % of sample not known.⁸

In our study occurrence of euphoric syndromes is 31.25 % in 1VIDD patients as compared to above mentioned studies.

In our study we have taken both MDD as well as schizophrenic patient.

As well as we distributed the sample according to sex also, this is not in precisely mentioned above mentioned studies.

- a. In our study occurrence of euphoric syndromes is 17.5% of total sample size.
- b. Among them 8.3% schizophrenic sample developed euphoric syndromes as compare to MDD sample where developing euphoric syndrome is 31.25% of MDD sample size.
- c. In the study 22.72% male patients developed euphoric syndromes.
- d. In the study 11.11% female patients developed euphoric syndromes.

So, a euphoric syndrome seems to develop twice more common in males as compared to females.

In our study the scales applied, after each ECT as well as duration of euphoric syndromes was also considered so other finding are mentioned below.

- 2.5% study patients developed euphoric syndrome form or at 3rd ECT.
- 2.5% study patients developed euphoric syndrome form or at 4th ECT.
- 10% study patients developed euphoric syndrome form or at 5th ECT.
- 17.5% study patients developed euphoric syndrome form or at 6th ECT.
- 2.5% study patients developed euphoric syndrome seen at 1 week and 1 month ECT.
- Euphoric syndrome starts arising from 3rd ECT and usually remits after 6th ECT excluding developing mania.

(2) CATEGORIZATION OF EUPHORIC SYNDROMES:

(a) MANIA: In the study 2.5% of patients developed mania.

In the study 1 patient developed mania whom was having schizophrenia. So, 4.16% of schizophrenia patients developed mania.

- 4.54% male patients developed mania.
- Mania started developing after 5th ECT.

(b) HYPOMANIA

- In the study 7.5% of patients developed hypomania.
- Among study patients 4.16% schizophrenia patients developed hypomania.
- Among study patients 12.5% MDD patients developed hypomania.
- Among study patients 9.09% male patients developed hypomania.

ORIGINAL ARTICLE

- Among study patients 5.55% female patients developed hypomania.
- Hypomania starts developing usually from 5th ECT.

(c)EUPHORIA

- 18.75% MDD patients developed euphoria. None of schizophrenia patient developed euphoria.
- 5.55% of female patients developed euphoria.
- 9.09% of male patients developed euphoria.

CONCLUSION:

1. 17.5 % of patients receiving ECT used to develop euphoric syndromes.
2. Euphoric syndromes are more common in MDD patients as compared to schizophrenia patients.
3. Male are 2 times more susceptible to develop euphoric syndromes as compared to females.
4. Euphoric syndromes starts arising from usually 3rd ECT (excluding mania) they usually remit with- in 7 days of completion of 6 ECTs.
5. Schizophrenia patients are more susceptible to develop mania as compared to MDD patients.
6. Males are more prone to develop ECT induced mania.
7. ECT induced hypomania is more common than ECT induced mania.
8. MDD patients are more prone to develop hypomania as compared to schizophrenic patients.
9. Male are more prone to develop hypomania as compared to female.
10. Hypomania usually starts from 5th ECT and having peak at 6th ECT.
11. Transient or short term euphoria occurs usually in MDD patient and having nil chances of schizophrenia patient.
12. Euphoria is having its peak at about 5th and 6th ECT.
13. Euphoria is more common in male patients as compared to female patients.

LIMITATION OF STUDY:

1. The sample that was studied from a municipal general hospital. This undoubtedly must have led to some degree of bias. A more representative sample has helped to clarify results.
2. As per study protocol, patients' follow up was up to 1 month, so data after that period not available to get concluded about recurrence of specific disorder.
3. Sample size is limited, which is not same representative of general population, so not thoroughly applied for conclusion.

BIBLIOGRAPHY:

1. Abrams Richard. Electroconvulsive therapy 4th edition, 2002, New York, page 3 Chapter1.
2. Abrams R. ECT in Schizophrenia. Convulsive therapy, 1987, Newyork, 169- 170 Chapter7.
3. Abrams R. Stimulus titration and ECT dosing. Journal of ECT 1999, New York, page253.
4. Abrams Richard. Electroconvulsive therapy. 4th edition, 2002, New York, page 183 Chapter 10.
5. Andrade C, Gangadhar BN, Swaminanth G, Channabasavanna SM. Mania as a side effect of electroconvulsive therapy. Convulsive Therapy, 4: 1988, ' 81

ORIGINAL ARTICLE

6. Andrade C, Gangadhar BN, Channabasavana SM. Further characterization of mania as a side effect of ECT. *Convulsive Therapy* 6, 1990: 318-9.
7. Andrade C, Gangadhar BN, Subbakrishna DK, Channabasavanna SM, Pradhan N. A double-blind comparison of sinusoidal wave and brief-pulse electroconvulsive therapy in endogenous depression. *Convulsive Therapy* 1988 4:297-305.
8. Andrade C, Gangadhar BN, Swaminanth G, Channabasavanna SM. Predicting the outcome of endogenous depression following electroconvulsive therapy. *Convulsive Therapy* 4, 1988 - :169-74.
9. Lakshmi N Yatham, Stanely P, Vivek Kusumakar. *Bipolar Disorder*. 2002, 243-244.
10. John S Kennedy. *Drug Induced Dysfunction*. *Psychiatry*.1991, 191-192.
11. Peter R. Breggin. *Brain disabling treatment*. *Psychiatry* 2007, 225-226.
12. Jules Angst, Rolf Adolfson, Franco Benazzi. The HCL-32 scale. *Journal of affective disorder* 88, 2005, 217-233.

AUTHORS:

1. Manasvi Jariwala
2. Dharmesh Patel
3. Vaishal Vora
4. Vinod Darji

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of Psychiatry, L. G. General Hospital.
2. Associate Professor, Department of Psychiatry, L. G. General Hospital.
3. Assistant Professor, Department of Psychiatry, L. G. General Hospital.
4. Senior Resident, Department of Psychiatry, L. G. General Hospital.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Manasvi Jariwala,
#7, Samrudthi-1, Bunglow-9,
Near Avalon Hotel,
Thaltej, Ahmedabad,
Email: dr_manasvi@yahoo.com

Date of Submission: 21/04/2014.

Date of Peer Review: 22/04/2014.

Date of Acceptance: 05/05/2014.

Date of Publishing: 31/05/2014.