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PSYCHOMOTOR RETARDATION AND AGITATION AS PREDICTOR OF RESPONSE OF ECT

Psychiatry

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ABSTRACT

OBJECTIVE- TO ESTABLISH CORELATIONSHIP PSYCHOMOTOR CHANGES AND ECT RESPONSE IN PATIENTS OF MDD
STUDY POPULATION-60 SUBJECTS WHO WERE HAVING MDD AND WERE REQUIRING ATLEAST 6 ECTs, AMONG THEM 22 WERE HAVING PSYCHOMOTOR AGITATION, WHILE 38 WERE HAVING PSYCHOMOTOR RETARDATION.
STUDY DURATION- FROM DEC. 2001 TO FEB 2002 AND FROM JAN. 2010 TO NOV.2012(BI-PHASIC)
OPERTIONAL CRITERIA—SUBJECTS WHO UNDERWENT 6 ECTS WERE ASSASED ON BASIS OF HDRS AND ITEM 8AND 9 OF HDRS
ANALYSIS---STATISTICAL VALUES WERE ANALYSED ON TH EBASIS OF DIFFERENT ATTRIBUTES LIKE PSYCHOMOTOR ACTIVITY, GENDER AND PAST HISTORY OF MDD
CONCLUSION----ANALYSING THE DATA PROVED THAT THERE IS NO SIGNIFICANT CORELATIONSHIP BETWEEN ECT RESPONSE AND PSYCHOMOTOR ACTIVITY

KEYWORDS:

Behavior problems, systemic pedagogy, action research.

Introduction

Depression is one of the commonest diagnosis made in psychiatric practice, with **Electro Convulsive** Therapy (ECT) having a major role in its treatment.

Use of ECT in depression has generally been advocated for presence of endogenous or melancholic features, stupor, suicidal risk, psychotic feature, recurrent depression and resistance to pharmaco therapy.[1]

However, response to ECT is not uniform amongst depressive, the rates of response are generally in the 50%-75% range.[2]

Also varying number of ECT treatments are required for response or recovery.

This variability in response has stimulated research for finding clinical variables with productive value.

Thereafter, research focused on individual socio-clinical variables that could serve as predictors of response to ECT.

There is lack of consensus on the predictive variables for good response to ECT due to inconsistent associations or possibility of chance associations due to numerous variables being studied at one time.[3]

The older age is associated with a good response.[3]

As regarded sex of the patient, some studies have found better response in females though earlier studies had found no consistent relationship.[4]

Similarly, there appears to be no consensus on the variable of duration of illness, polarity of illness, severity of illness as predictors of response.

In these circumstances, this study was planned to obtain definitive results by using clear scoring systems for depression and for the different parameter of psychomotor activity that can be utilized as a predictor to ECT response.

But before any study can be carried out, it is essential to study the optimum literature available. Accordingly, I proceeded to call the available literature for pertineut reference, which I now present.

ECT in Depression :

- In United states, it was found that approximately 80% of patients who receive ECT present with major depression.
- Because major Depression is more common among females, they are more likely to receive ECT that males.
- The elderly patients were also found to receive high percentage of ECT probably because ECT has a superior medical safety profile compared to some pharmacological alternatives and because rates of medical resistance and intolerance are elevated among the elderly.[5]
- The short term efficacy of ECT in major depression is well established.
- The American Psychiatric Association (APA) recommends that ECT is an effective treatment for all types of unipolar and bipolar major depression.[6]
- People with severe or hard to treat depression, ECT is the best treatment. In severe depression it can be lifesaving. ECT works quickly, especially in severe, Psychotic or suicidal Depression. But ECT related improvement in snort lasting so, Antidepressants medicines must be given to continue ECT induced improvement.[7]

Efficacy of ECT in Depression :

- With in a few years of the introduction of ECT, it was recognized that therapeutic results or ECT in depressive illness were striking and often superior to those in schizophrenia.[8]
- Prior to the introduction of pharmacotherapy most of the uncontrolled studies of depressed patients reported response rate of 80% - 100%.[9]
- ECT was able to decrease chronicity, decrease morbidity, and possibly decrease rate of mortality.[10]
- Various studies have confirmed effectivenell of ECT in MDD.
- In sample size of 38 patients who were having severely treatment resistant MDD up to 6 ECT. Session was given It was found that 25 patients (65.8%) responded significantly (as per the HDRS) and 21 (53.3%) achieved remission.[11]

Efficacy as Compared to Antidepressants :

- Janieak et al 1985, in a meta analysis reported that the adequate response rate to ECT was 20% higher when compare to TCA and 45% higher when compared to MAOIs.
- In University of Pisa, Italy, Pagnin D and Associates found significant superiority of ECT in various (Umparision J i.e. ECT versus Placebo, ECT versus antidepressants in general ECT versus TCAs and ECT versus MAOIs.[12]
- A restrospective study of 58 patients of MDD and BMD (D) in butler hospital, Rhode Island, USA, Conducted by Gagne GG and associates it was found that ECT continuation group of 29 patients shown almost no relapse in comparision Antidepressants alone

group of 29 patients.[13]

Predictors of Response :

Predictors of clinical outcome in depressed patients treated with electro convulsive therapy is of great utility and would certainly enhance clinical practice.

Attempts have been made to identity clinical subtypes and biological indicators that would reliably predict response to ECT.

Studies so far searching for such predicators are still inconclusive and no reliable predictors have yet been found.

The efficacy of ECT in particular subtypes of depression such as those with endogenous features and psychotic features have been well studied. However there have been conflicting reports as to their value as predictors of response.

In a combined analysis of the Northwick park and Leicester trials, Buchan et al (1992) found an advantage for ECT among patients with retardation and \ or delusions or hallucinations.[14]

The Royal College of Psychiatrist (RCP) special committee on ECT had suggested that patients with retardation or delusion are particularly likely to respond to ECT .[15]

However a different pattern was observed in the Nottingham Trial (O'Leary et al 1995) which found that ECT was of substantially greater short term benefit to non-retarted and non-deluted patients this trial was limited by a small sample size.[16]

Biological predictors of ECT response have been extensively investigated.

sackheim et al (1996) studied the relationship between quantitative EEG and clinical outcome. They found that electro convulsive therapy produced a marked short term increase in delta and theta power. At 2 months follow up, there were no significant alteration in any frequency band. Effective forms of ECT resulted in increased delta power in prefrontal region and these changes were associated with the magnitude of symptomatic improvement. They concluded that the induction of slow wave activity in prefrontal cortex is linked to the efficacy of ECT.[17]

AIMS AND OBJECTIVES

1) To study whether the presence of psychomotor agitation or psychomotor retardation can predict the response to ECT in depression.

2) To study whether either sex can predict ECT response in psychomotor agitated or psychomotor retarded depressed patients.

3) To study whether past history of depression can predict ECT response in psychomotor agitated or psychomotor retarded depressed patients.

4) To study comparison of improvement between agitated and retarded depressed patient after giving ECT.

Material and Method

1) Study Subjects

a)Inclusion Criteria :

The study sample comprised a single group of 30 patients with the DSM IV diagnosis of Major Depressive Disorder (MDD). Out of 30 patients 19 patients were having psychomotor retardation whereas 11 patients having psychomotor agitation on Hamilton Depression Rating Scale (HDRS) (Criteria 8,9)

For Patients on antidepressant, a 5 days washout period was given.

b) Exclusion Criteria :

Patients with organic / physical illness, any other concomitant psychiatric illness, ECT in the previous 6 months and those who had any contraindication for the administration of ECT were excluded from the study.

2) Study Flow

The study had a prospective design with serial rating, of depression before and after the course of ECTs.

a)ECT Description and Schedule :

The ECT machine was an electronic brief pulse that worked on 230 volts, 50 cycles AC mains with provision for 90-160 volts selection and a timer with a relay to give timing selection from 0.1 to 1.1 second, There was however no facility for EEG monitoring in ECT machine.

Patients were administrated modified ECT three times a week i.e. on Monday, Wednesday and Saturday at relatively fixed time between 9:00 a.m. to 10:00 a.m. Anesthesia was given by thiopentone sodium (150-300 mg) and succinyl choline (30-50 mg) was used as a muscle relaxant. All were premeditated with atropine and ventilated with 100% oxygen during induction and recovery after ECT, ECT was administered using standard bilateral fronto-temporal electro placement.

No concurrent medicines apart from Benzodiazepines, were used during the inpatient stay. Benzodiazepines were administered when ever dammed necessary and careful record was kept.

b) Assessment instruments :

(a) Hamilton Depression Rating Scale (HDRS) was used for assessing the severity of depression. (Hamilton 1967)

(b) The item No. 8 and No. 9 of HDRS were used to differentiated patient having where he/she had psychomotor retardation or psychomotor agitation.

c) Operational Criteria :

a maximum of 6 ECT were planned for each patient. The course of ECT was limited up to 6 as an endogenously depressed patient generally required on an average 6-8 ECT (Taylor 1982). However, any patient who had score of less than 8 on HDRS, was deemed to have recovered and ECT was stopped.[18]

Additionally, a prior definition was kept for determining 'Good Response' to ECT. 60% or grater reduction in the intake HDRS score by the end of ECT course was defined as 'Good Response' (Sackeim et al 1987)

d) Assessment :

After obtaining informed consent from the patients and / or their relatives, severity of depression was assessed on HDRS while presence of retardation / aqitation was assessed by Item 8 / 9 of HDRS.

The scales were administered one day prior to the commencement of the course ECT and again after the full course of ECT.

Observation And Analysis

In this study, subjects for the index group were chosen from the hospital cases in such a way that at least few of the socio-demographic parameters matched to the greatest extent, confounding factors were avoided so as to make valid comparisons without any biases.

Table No. :- 1 : Chi-Square test for significance of agitated and retardate depressed patients.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
Agitation	16	6	22
Retardation	30	8	38
	46	14	60

In above table the total agitated patients were 22 out of them 16 patients showed good response to ECT where 6 patients not showed more than 60% improvement in HDRS. Like wise there were 30 retarded patients who showed improvement and 8 did not show good response.

The chi-square value : 0.3031 degree of freedom = 1, Z value – 0.549
P value – 0.5830

So, it is found to be statically not significant that agitation or retardation ahs predictor for improvement in depressed patents when ECTs were given.

Table No. :- 2 : Comparison of Sex of the patients as regards with agitation for predictor of response.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
Male	6	0	6
Female	10	6	16
	16	6	22

In this table it is shown that total no. of agitated male patients were 6 out of all showed good response to ECT whereas total no. of Female agitated patients were 16, out of which 10 showed good response and 6 showed poor response.

Chi-square value : 1.759 at degree of freedom = 1, Z value – 1.759
P value – 0.0786

Table No. :- 3 : Comparison of Sex of the patient as regards with retardation for Predictor of response.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
Male	10	4	14
Female	20	4	24
	30	8	38

In this table it is shown that total no. of retarded male patients were 14 out of them 10 responded well to ECT whereas 4 did not show much improvement. And total no. of female retarded patients were 24, out of them 20 responded well and 4 did not show much improvement.

Chi-square value : 0.751, Z value = 0.8683
P value – 0.3852

Table No. :- 4 : Comparison of mean improvement of HDRS score in individual agitate / retarded patients on Item 9 / 8 in HDRS.

	Pre ECT mean Value (HDRS)	Post ECT mean Value (HDRS)	Improvement in %
Retardation	2.90	0.63	78.2 %
Agitation	3.27	1.09	66.6 %

Above table shows that in retarded patients the mean HDRS score on item 8 of HDRS was 2.90 before ECT and 0.63 after the course of ECT, So the improvement in HDRS score of item 8 showed 78.20 % improvement where in agitated patients the mean HDRS on item 9 before ECT was 3.27 and after the course of ECT 1.09 showing 66.66 % improvement.

Table No. :- 5 : Study of past history of depression in retarded patients.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
P/H of depression (+)	14	2	16
No P/H of depression	16	6	22
	30	8	38

In above table it is shown that the total no. of patient having past history of depression were 16 out of them 14 showed good response to ECT whereas 2 did not show much improvement. There were also total 22 no. of patient having no past history of depression, out of them 16 showed good response whereas 6 did not show much improvement.

Chi-square value at degree of freedom = 1 1.261, Z value = 1.103 and P value is 0.2701

Table No. :- 6 : Study of past History of Depression in Agitated Patients.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
P/H of depression (+)	10	8	18
No P/H of depression	4	0	4
	14	8	22

In this table total 18 patients where having past history of depression out of them 10 improved and 8 did not show good response. At the same time only 4 patients where having no past history of depression out of them both were showed good response to ECT.

Chi-square value at degree of freedom = 1 is 2.794, Z value = 1.671
P value – 0.0946

Table No. :- 7 : Comparison of Sex on Total HDRS Improvement.

	Good Responder (> 60% HDRS Imp)	Poor Responder (<60% HDRS Imp)	Total
Male	16	4	20
Female	26	14	40
	42	18	60

This table shows total no. of male patients were 20 out of them 8 showing good response to ECT where 4 did not show good response. Like wise total 40 female patient were there out of them 26 showed good response and 14 showed poor response.

Chi-square value at degree of freedom = 1 is 1.429, Z value = 1.195 and is P value – 0.2320

Discussion

1. In 1992 Buchan et al and in 1995, Royal college of psychiatrist suggested that patients with psychomotor retardation are particularly likely to respond well to ECT, how ever O'Leary et al in 1995 found that ECT showed grater short term benefit among non-retarded patients.[14,16]

2. In 1990 Andrade et al and in 1996 Ancy et al reported that presence of agitation and retardation were found to be non-predictive as regards response to ECT, In my study there is also non significant difference found which is comparable to this study.[19]

3. So it is found that it is statically insignificant that any sex in agitated depressed patients predict the ECT response which is also supported by the study of Nitin Gupta et al in 2000, though Hamilton in 1982 found better result in female patients but earlier studies had found no consistent relationship.[4,20]

4. So it is found that is statically insignificant that any sex in retarded patient predict the ECT response in depressed patient which is again supported by study of Nitin Gupta et al in 2000.[20]

5. In this observation it seems that the presence of agitation was showing more frequent poor response which was supported by Pande et al 1988 how ever the difference was not statistically significant as stated by Hickie et al in 1996 and also shown in this study earlier. .[21,22]

6. No statically significant difference was found in this study having psycho-motor retardation in between history of Past episodes of depression and No history of past episodes of depression. This observation is also supported by the study of Nitin Gupta et al 2000.[20]

7. In my study there was no statically significant difference found in patient of agitation having past history of depression and no past history of depression which is supported by the study of Nitin Gupta et al in 2000.[20]

8. In 1982 Hamilton et al reported that female patients showed good response to ECT but in our study there is no statically significant difference found between any sex in response to ECT. This difference may be due to Small sample size.[4]

   In study of Nitin Gupta et al in 2000 also no significant difference was found.[20]

9. In July 1996 I Hickie and associates, used CORE system for prediction of ECT response. Results were showing combination of marked psychomotor recordation (High core scores) and psychotic features predicted the best response to ECT.[23]

10. In July 1990, I Hickie and associates conducted an open study of 35 Depressed subjects, having either psychomotor retardation or psychomotor agitation assessed by the CORe rating system, they concluded that "Retarded" subjects significant predicted response compared to the other group.[24]

Conclusion

The present study indicates that though certain variables are predictors

to good response to ECT in depression how ever it was seen that presence of retardation and / or agitation does not predict the response to ECT in a depressed patient. Like wise other variables like longer duration of past depressive episodes, past history of depressive disorder, sex are also found to be non predictive as regards response to ECT. It is important to mention that all previous findings could not be replicated.

In fact some studies have been unable to distinguish sub-groups of endogenous depressive with respect to response to ECT. Therefore the findings so obtained may be by chance and reflect the inconsistency across the research for predictive variable.

Limitations of Study

Some methodological problems and biases might have interfered with strength of this conclusion. The patient were taken from one hospital only and thus this could have hindered the generalization of the finding. Small sample size which affects the power of the statistical tools employed. Further our study sample consisted pre dominantly a patients from a lower socio-economical background, and therefore is not very representative, another issue that deserves the mention is importance of biological predictors of response to ECT in depression. Though earlier studies have shown light upon this issue, the same could not be studied in this project due to various practical limitations.

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