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Research Article

Socio demographic, clinical and side effect profile of electroconvulsive therapy use among psychiatric inpatients: a cross sectional study from South East Asia - Kashmir

Mohammad Maqbool Dar[1], Sheikh Shoib[2], Raheel Mushtaq[2]*, Rameshwar Singh Manhas[3]

[1]Head of Department, [2]Senior Resident, [3]Resident Scholar, ECT Clinic, Department of Psychiatry, Government Medical College, Srinagar, Kashmir, India

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***Correspondence:**
Dr. Raheel Mushtaq,
E-mail: Shahraheel786@gmail.com

ABSTRACT

Background: Electroconvulsive Therapy (ECT) is a neuromodulative technique, which is effective but underutilized for treatment of psychiatric disorders. The aim of the study was to investigate **s**ocio demographic, clinical and side effect profile of electroconvulsive therapy use among psychiatric inpatients.
Methods: A cross sectional study was performed for a period of 1 year in postgraduate department of psychiatry (Institute of mental health and neurosciences Kashmir - center of excellence). Patients of pharmacotherapy resistant psychiatric disorders attending the hospital during this period were taken in study. The data was recorded in a specially designed proforma which documented the socio-demographic variables including age, sex, residence, occupation, socioeconomic status was recorded. Chi-square, Fisher exact, and t tests were used to note the statistically significant association.
Results: The mean age of the study sample was 39.6 (±11.76) years. Maximum number of patients were in the age group 41-50 years i.e. 16 (28.6%), followed by 31-40 years i.e. 15 (26.8%). The mean number of ECT's received was 8.22 (±2.073). About 29 (51.8%) patients reported body aches, 24 (42.9%) patients reported forgetfulness, 9 (16%) patients reported headache and only 1 (2%) patient reported agitation.
Conclusion: The results indicate that electroconvulsive therapy is used in all psychiatric disorder with fewer side effects in pharmacotherapy resistant psychiatric disorders.

Keywords: ECT, Sociodemographic, Psychiatric inpatients, Psychiatric disorders

INTRODUCTION

ECT (Electroconvulsive therapy) is a neuromodulative techniques, in which seizure are induced under medical supervision by passing electric current across the skull.[1] ECT is widely used in India as compared to west as a therapeutic option for treating various psychiatric disorders.[1] 13.4 to 14.3% patients in India receive ECT, which is far more than in developed countries.[2] ECT is usually given in combination with other psychotropic drugs as an emergency or augmentation strategy. It is considered as safe and effective treatment for acute episodes or treatment resistant psychiatric disorders.[3]

Despite its high efficacy and low side effects, it has remained very controversial treatment due to negative publicity, stigmatizations attached to it and lack of awareness even among medical professionals.[4] Due to these reasons, ECT has received low acceptability in the medical community and is one of the most underutilized biological treatments. Misconceptions and negative views regarding ECT among people and medical professional including psychiatrist limit its use.[5]

Psychiatric disorders are among the leading causes of morbidity and mortality worldwide. Psychological as well as psychiatric disorders are on a rise in Kashmir from the past two decades. There have been periods of political turmoil which increased the mental health problems and suicidal cases compared with the pre turmoil period.[6-8] Despite considerable advances in the understanding of the pathophysiology and the availability of effective therapies that include pharmacological and nonpharmacological approaches, there are still a sizeable number of patients in this part of world, that do not respond adequately to treatment. The consequences of treatment resistance are devastating for the patients, including poor quality of life, chronic disability, increased risk for medical illness, substance and alcohol abuse, and suicide, as well as to families and societies who deal with the increasing psychological and financial burden.[9] Careful diagnostic re-evaluation of patients who appear treatment resistant must be conducted and most effective evidence-based strategies applied to their care The ECT is effective in treating these pharmacological resistant patients.[9,10]

Electroconvulsive therapy is used frequently to treat various psychiatric disorders in Kashmir. The present study was conducted to investigate socio demographic, clinical and side effect profile use of electroconvulsive therapy among psychiatric patients.

METHODS

Setting

This study was carried out at postgraduate department of psychiatry (Institute of mental health and neurosciences Kashmir - center of excellence) of government medical college Srinagar.

Study design

Our study is a non-controlled prospective interventional study which was carried out at postgraduate department of psychiatry (Institute of mental health and neurosciences Kashmir - center of excellence) over a period of one year and two months, from March 2012 to April 2013 enrolling 56 patients of pharmacotherapy resistant psychiatric disorders. All patients were then taken for ECT were subjected to inclusion and exclusion criteria.

General information including age, sex, residence, occupation, socioeconomic status etc. was recorded. The following data were collected from patient records: socio-demographic information, clinical profile (diagnosis, previous psychiatric hospitalizations, family history of mental disorders, presence of clinical comorbidities), and ECT data, i.e., number of sessions, complications during and immediately after the procedure (within 72 hours), late complications (more than 72 hours after the procedure), and treatment response.

Patient's selection

The patients with pharmacotherapy resistant psychiatric disorders were taken up for the study. The pharmacotherapy resistant psychiatric disorders were diagnosed by consultant psychiatrist.

Inclusion criteria

- Patients of pharmacotherapy resistant psychiatric disorders.
- Both sex were included.

Exclusion criteria

- Those who do not consent.
- Those who had never received a trial of pharmacotherapy and ECT was given as acute management.
- Patients in whom general anaesthesia is contraindicated.
- Age less than 13 years.

RESULTS

Table 1 shows the age distribution of the studied patients, maximum number of patients were in the age group 41-50 years i.e. 16 (28.6%), followed by 31-40 years i.e. 15 (26.8%), 21-30 years i.e. 14 (25%), 51-60 years i.e. 10 (17.8%) and more than 60 years i.e. 1 (1.8%). The mean age of the study sample was 39.6 (±11.76) years. Males constituted 29 (51.8%) patients out of the total patient size and female constituted 27 (48.2%) of the total size. Maximum number of studied patients were of unipolar depression i.e. 30 (53.6%) followed by Bipolar affective disorder in mania i.e. 11 (19.7%) followed by BPAD in depression i.e. 10 (17.8%) followed by OCD i.e. 5 (8.9%).

37 (66.1%) patients lives in rural areas whereas 19 (33.9%) patient lives in urban areas. 30 (53.6%) patients were married, 19 (33.9%) patients were unmarried, 6 (10.7%) patients were widowed and 1 (1.8%) patient was divorced.28 (50%) patients had income between Rs. 5000-15000 followed by 16 (28.6%) patients who had income below Rs. 5000 followed by 12 (21.4%) patients who had income above Rs. 15000. Table 1 represents the education status of the studied patients. 41% of the studied population were illiterate followed by 26.8% graduates followed by 17.9% higher secondary pass followed by 14.3% secondary pass.

Table 1 shows the socioeconomic status of the studied patients as per the Kuppuswamy's socioeconomic scale (2007) which takes into account the education,

occupation and family income per month. After studying these variables of the patients 27 (48.2%) patients belong to socioeconomic class 2, 17 (30.4%) patients belongs to socioeconomic class 4, 10 (17.8%) patients belongs to socioeconomic class 3 and 1 (1.8%) patient each belongs to socioeconomic class 1 and 5.

Table 1: Socio-demographic profile of patients.

	No. of patients	Percentage
Age (in years)		
21-30	14	25%
31-40	15	26.8%
41-50	16	28.6%
51-60	9	17.8%
>60	1	1.8%
Mean (±SD)	39.6 (±11.76)	
Sex		
Males	29	51.8%
Females	27	48.2%
Clinical diagnosis		
Unipolar depression	30	53.6%
BPAD in mania	11	19.7%
BPAD in depression	10	17.8%
OCD	5	8.9%
Dwelling		
Rural	37	66.1%
Urban	19	33.9%
Marital status		
Married	30	53.6%
Unmarried	19	33.9%
Divorced	1	1.8%
Widowed	6	10.7%
Income (in rupees)		
<5000	16	28.6%
5000-15000	28	50%
>15000	12	21.4%
Socioeconomic class		
1	1	1.8%
2	27	48.2%
3	10	17.8%
4	17	30.4%
5	1	1.8%
Religion		
Muslims	56	100%
Others	0	0%

Table 2 shows number of ECT's received by patients. 34 (68%) of patients had received 6-9 ECT's whereas 16 (32%) of patients had received 10-12 ECT's. The mean number of ECT's received was 8.22 (±2.073).

Table 3 shows side effects reported by patients at the end of ECT course, at 3 months follow up and at 6 months follow up. About 29 (51.8%) patients reported bodyaches, 24 (42.9%) patients reported forgetfulness, 9 (16%) patients reported headache and only 1 (2%) patient reported agitation. At 3 months follow up 2 (4%) patients reported headache and agitation respectively. No patient reported any side effect due to ECT at 6 months follow up.

Table 2: Number of ECT's received by patients.

No. of ECTS	No. of patients	Percentage
6-9	34	68%
10-12	16	32%
Total	50	100%
Mean (±SD)	8.22 (±2.073)	

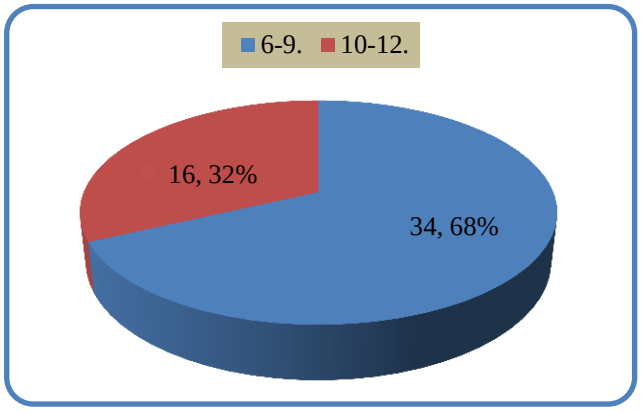

Figure 1: Number of ECT's received by patients.

Table 3: Side effects reported by patients.

	End of ECT course	At 3 months follow up	At 6 months follow up
No. of patients	50 (100%)	50 (100%)	43 (100%)
Body aches	29 (51.8%)	0 (0%)	0 (0%)
Forgetfulness	24 (42.9%)	2 (4%)	0 (0%)
Headache	9 (16.1%)	2 (4%)	0 (0%)
Agitation	1 (2%)	0 (0%)	0 (0%)
Others	0 (0%)	0 (0%)	0 (0%)

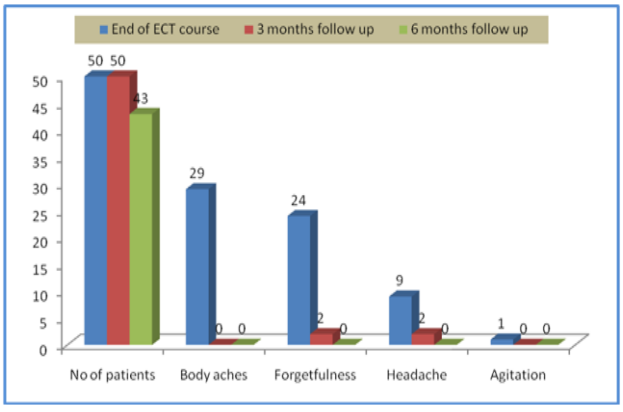

Figure 2: Side effects reported by patients.

Table 4 shows mean MMSE score of the studied population. The mean MMSE at pre ECT was 27.52, at the end of ECT course is 25.54, at 3 months follow up is 27.40 and at 6 months follow up is 27.21.

Table 4: Mean MMSE score of the studied population.

	Total no. of patients	Mean ± SD	P value
Pre ECT (MI)	56	27.52 ± 1.585	<0.0001
End of ECT course (M2)	50	25.54 ± 2.052	
3 months follow up (M3)	50	27.40 ± 1.463	
6 months follow up (M4)	43	27.21 ± 3.454	

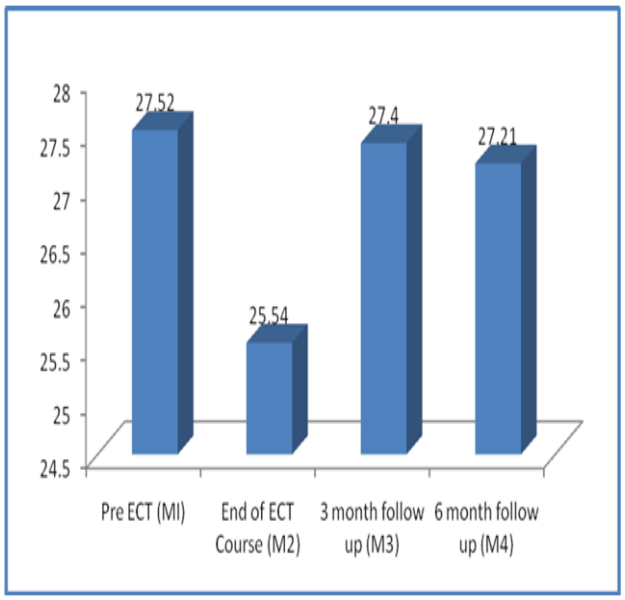

Figure 3: Mean MMSE score of the studied population.

Table 5 shows the comparison of mean MMSE at pre ECT with end of ECT course, at 3 months follow up and at 6 months follow up. The difference of mean MMSE score between pre ECT and at the end of ECT course is 2.281, between pre ECT and at 3 months follow up is 0.119 and between pre ECT and at 6 months follow up is 0.612. The P value is <0.0001 for the difference between pre ECT and end of ECT course which is highly significant.

Table 5: Comparison of mean MMSE score.

Comparison	Mean difference	Significance (P value)
MI V M2	2.281	0.0001
M1 V M3	0.119	0.783
M1 V M4	0.612	0.173

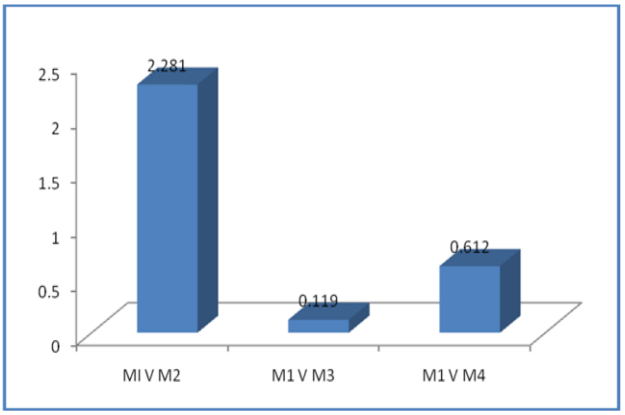

Figure 4: Comparison of mean MMSE score.

DISCUSSION

Electroconvulsive Therapy (ECT) has been used throughout the world since 1938, despite many pharmaceutical treatment advances. ECT offers advantage over psychotropic drugs in emergency situations, as compliance to these drug is a big issues in psychiatric patients.[11,12] The survival of ECT over the years is only because of its time tested efficacy in ameliorating and reducing psychiatric symptoms.[11]

Socio-demographic profile

Tabulation and analysis of the data shows that the maximum number of patients were in the age group 41-50 years i.e. 28.6% of patients followed 31-40 years i.e. 26.8% of patients. The mean age of our studied patients was 39.6 (±11.76) years. Our finding suggests that the peoples who were treated with ECT's were approximately 10 years younger than patient who received ECT's in western world. The reason might be that majority of our patients were of depression (53.6% unipolar depression and 17.8% of bipolar depression) and age of onset of depression is quite younger in Kashmir compared to other areas. Prevalence of depression in age group 15-25 years (66.67%) is maximum followed by age group 26-35 years (65.33%).[13] This finding of ours is in accordance with Bharadwaj et al. (2012),[14] who found the mean age of patients receiving ECT was 36.2 (SD 14.08) years. However our observation is in contrast to Moksnes et al. (2010)[15] and Nordenskjold et al. (2012)[16] who found the mean age of the patients receiving ECT was above 50 years. Preferably, the reason for this could be that these were western studies, where the notion is that older patients benefit more than the younger patients from ECT and it was given more to older group.[16]

The number of male patients in our study were comparable to females as treatment resistance psychiatric disorders are comparable in both sexes.[16,17] There were total number of 29 i.e. 51.8% male patients and 27 i.e. 48.2% female patients in our study. Nordenskjold et al. (2012),[16] Bharadwaj et al. (2012),[14] Rey et al. (1997)[18] showed that males received more ECT's than females.

Our study is in contrary to these findings. However Sackeim et al. (2009)[19] and Moksnes et al. (2010)[15] found the use of ECT more in females.

The majority of the studied patients were having rural background (66.1%), as compared to urban areas (33.9%). This can also be explained on the basis of the fact that our hospital is the only major hospital in the whole of Kashmir valley and gets referrals from all the areas of the valley as well as Ladakh region. The finding is in agreement with the results of Bharadwaj et al. (2012)[14] who found that 61.2% patients are from rural background while 38.8% patients are from urban background.

In our study most of the patients 30 (53.6%) were married followed by unmarried 19 (33.9%) followed by widowed 6 (10.7%) and 1 (1.8%) who was divorced. The reason might be that most of our studied population is between 30-50 years and most peoples in this part of world were married by the age 30 years. Bharadwaj et al. (2012),[13] also noted that 55.2% of patients who were receiving ECT were married. Similar findings have also been reported in earlier studies.[15] The literacy status of the majority of the studied patients was literate (58.9%), while rests were illiterate (41.1%). This might be due to the fact that Jammu and Kashmir is one of the states of India, which has seen upward trends in literacy rates and the literacy rate of this state is 67.16% as per 2011 population censes.[16]

The majority (50%) of the studied patients had their family income in the range of 5000-15000 rupees. 48.2% patients belong to socioeconomic class II ,30.4% patients belongs to socioeconomic class IV,17.8%) patients belongs to socioeconomic class III and 1.8% patient each belongs to socioeconomic class I and V.

Number of ECT

About 68% of the studied patients received 6-9 ECT's and 32% received 10-12 ECT's. The mean number of ECT's received was 8.22 (±2.073) ECT's. Our finding is in accordance with Pinto et al (2002)[20] and Krossler et al. (1993),[21] who also found that the number of ECT's given per patient was 8.38 (±1.66) and 7.9 (±2.9) respectively.

Cognitive decline

The primary side effect of ECT is short term cognitive impairment, which generally resolves within days or weeks.[22] At the end of ECT course there is significant decrease in MMSE score by 2.281. Sakeim et al. (1993)[23] and Eugene H. Rubin et al. (1993)[24] noted significant decrease in MMSE score following ECT course. The difference in MMSE score at 3 month (P = 0.783) and 6 month follow up (P = 0.173) from pre ECT level was quite insignificant. Flint et al. (2002)[25] found that impaired cognitive functions are the most frequent adverse effect of ECT but these deficits were marginal at 1-month follow-up and gets disappeared by 6-month follow-up.

Side effects reported by patients after ECT

At the end of ECT course, the most common side effect reported by patients was bodyaches. Further 58% of patients complained of mild to severe bodyaches. This might be due to muscle relaxant succinyl choline, which was used during ECT procedure. Generalized aches and pains, similar to the myalgia that follows violent exercise, are common 24-48 hours following administration of succinylcholine. The 2nd most common complain reported by patients at the end of ECT course is forgetfulness which occurs in 48% of patients. About 75% of patients receiving ECT reported memory impairment (forgetfulness) as the worse adverse effect. Kjell et al. (2010)[26] who had reported forgetfulness in only 17.4% of patients. The 3rd most common complain reported by patients at the end of ECT course was headache, which was reported by 18% of patients. The finding is in agreement to Kutcher et al. (1995),[27] who had reported headache in 15% of patients. However the finding is in contrast to Kjell et al. (2010),[26] who had reported headache in 3.3% of patients. 2% of patients had reported agitation at the end of ECT course. None of patient reported nausea and vomiting following ECT. This might be due to the fact that we were using propofol which has antiemetic properties[27] and also used to treat nausea and emesis in the early postoperative period.[28] At 3 months follow up after ECT, only 2 (4%) patients reported headache and 2 (4%) of patient reported headache. At 6 months after ECT, no patient had reported any side effects. This might be due to fact that side effects due to ECT are usually mild and usually gets reversed in few days to few weeks. Hauser et al. (2010) had also stated that memory loss (forgetfulness) generally improves few weeks after ECT and other side effects such as headache, bodyaches are temporary side effects that nearly always go away within days after ECT.[29]

Thus we conclude that ECT is an is used in all psychiatric disorder with mild side effects ,which get reversed within few days to few weeks with no major life threatening complications.

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