

EFFECTS OF CONTINUATION ELECTROCONVULSIVE THERAPY (C-ECT) AND PSYCHOTIC MEDICATION IN DEPRESSED ELDERLY PATIENTS WITH CATATONIC SCHIZOPHRENIA

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Abstract

Background: Electroconvulsive therapy (ECT) effectively treats severe mental health condition, including catatonic schizophrenia. The aim of continuation ECT (c-ECT) is to prevent relapse from depression. The objective of this study is to analyse the effect of c-ECT and psychotic medication in depressed elderly patients with catatonic schizophrenia. **Methods:** The study was conducted between March 2023 to April 2024 at a tertiary care medical college hospital and research centre. The study includes 14 patients >45 years of age in catatonic schizophrenia who responded to acute ECT in hospitalization during which time they received psychotic medication. The data was collected based on three sections in interview schedule. Socio-demographic factors were evaluated by mean, standard deviation, and ANOVA were calculated using SPSS version 24. The significant level was set at <0.05 for all analysis. **Results:** The mean age of the patients was 57.3±12.4. Male elderly patients were 6(42.8%) and female elderly patients were 8(57.2%). Majority of patients (50.0%) had 1-2 decades duration of illness. The average number of hospitalization and total admission days showed a statistically significant relation (p=0.001) following the initiation of c-ECT. The number of admission days and the number of hospitalization of male patients and female patients are strongly associated with p-value. The study observed adverse effects of elderly patients in catatonia schizophrenia who underwent c-ECT and psychotic medication. **Conclusion:** Catatonia is not often recognized in older patients and poorly understood. It is also believed that the age of the patients contributed significantly to several factors. Some studies stated that older patients were less likely to respond to ECT than younger patients. The individualized treatment approach of c-ECT provided personalized benefits and reducing adverse effects among depressed elderly patients.

Keywords: Catatonia Schizophrenia, Continuation-Electroconvulsive Therapy, Depressed Elderly, Psychotic Medication, India.

INTRODUCTION

Catatonic schizophrenia causes an individual to experience extreme changes either involves abnormal movements or no movement at all [1]. It is one of the clinical subtypes of schizophrenia. Catatonia is a complex combination of psychomotor abnormalities and mood. There are forty different signs and symptoms associated with catatonia are categorized into two groups: those slowing a person toward immobility and inaction and those agitating a person with hyperactivity [2]. The treatment of catatonia in schizophrenia is with benzodiazepines as the first line of treatment and then electroconvulsive therapy (ECT). Specifically, in catatonic schizophrenia, ECT is

the treatment of choice and there have been large-scale trials conducted for patients with schizophrenia with catatonia [3].

ECT is a quick and effective acute treatment for mood and psychotic disorders [4]. It is a procedure that uses a mild electrical current to cause a brief seizure to treat severe mental health condition, including depression and schizophrenia. In modern methods, anaesthesia also used to minimize any discomfort felt by the patient during the procedure. Continuation-maintenance electroconvulsive therapy (c-ECT) treatments have been reported to be effective in preventing relapse after initial ECT, severe symptoms, psychotic symptoms, and medication intolerance [5].

Catatonia is under recognized in older adults [6], may lead to delayed treatment, misdiagnosis, adverse events, and even death. In the older population, the prevalence of catatonia also seems to vary depending on the setting and diagnostic criteria used. The clinical characteristics and course of catatonia in old age are poorly understood. Some study results suggest that [7] the use of c-ECT in combination with medication may be a strong strategy to treat the elderly people in schizophrenia. The objective of this study is to analyse the effect of c-ECT and psychotic medication among depressed elderly patients with catatonic schizophrenia.

MATERIALS AND METHODS

Study area and design: The present study was conducted among elderly patients in catatonic schizophrenia between March 2023 to April 2024 at a tertiary care medical college hospital and research centre. Research was started after receiving the approval from the Research Ethical Clearance Committee of the university, Chennai. The study involved the review of medical records of all patients who received c-ECT at the psychiatric unit. A written informed consent was obtained from the elderly patients and their family members. The study includes 14 patients >45 years of age in catatonic schizophrenia who responded to acute ECT in hospitalization during which time they received psychotic medication. At present, c-ECT is predominantly delivered in an outpatient setting. In the morning, patients complete the registration process and undergo pre-ECT evaluation. They were evaluated by psychiatrists and anaesthesiologists. Antipsychotic medication was discontinued before treatment. Finally, ECT procedure was conducted in the post-anaesthesia care unit. The observation of the patient, duration before and after ECT was maintained for each patient. The pulse width of c-ECT administered to elderly patients was 0.5-1.0 second.

C-ECT was administered to elderly patients for 6 months. The first four ECT sessions were given at weekly intervals. The second four ECT sessions were given every 2 weeks and the third ECT sessions were given every 4 weeks. Particularly, one adequate seizure was required for each session to define cerebral seizure. Neuroleptics were used with c-ECT to prevent relapse immediately after the ECT course.

Data collection

The data was collected based on three sections in interview schedule. In section 1, socio-demographic data were collected from the patients. Section 2 focused on clinical characteristics data of the patients such as, psychiatric diagnosis and ECT initiation. Section 3 collected hospitalization data, including number of admission in the hospital, length of hospitalization, ECT sessions, and duration of before and after stay of c-ECT.

Statistical analysis

In this study, researchers have used means and standard deviations for qualitative variables and frequencies and percentages for categorical variables. Socio-demographic factors were evaluated by mean, standard deviation, and ANOVA were calculated using SPSS version 24. The significant level was set at <0.05 for all analysis.

RESULTS

The socio-demographic and clinical characteristics of all patients are presented in Table-1. The age of participants ranged from 46 to 67 years and the mean age was 57.3±12.4.

Table 1: Socio-Demographic and Clinical characteristics of the patients with Catatonic Schizophrenia (N=14)

Variables		N (%)
Age	46 - 50	4 (28.6)
	51 - 60	7 (50.0)
	>60	3 (21.4)
Gender	Male	6 (42.8)
	Female	8 (57.2)
Marital status	Single	4 (28.6)
	Married	4 (28.6)
	Widowed	5 (35.7)
	Divorced	1 (7.1)
Education	Illiterate	2 (14.3)
	High school	3 (21.4)
	Higher. Sec	7 (50.0)
	Graduation	2 (14.3)
Occupation	Unemployed	6 (42.8)
	Full time	5 (35.7)
	Part time	3 (21.4)
Duration of illness	< 1 decade	2 (14.3)
	1-2 decade	7 (50.0)
	>2 decade	5 (35.7)
Underlying physical disease	Yes	6 (42.8)
	No	8 (57.2)

Male elderly patients were 6(42.8%) and female elderly patients were 8(57.2%). The total duration of c-ECT treatment for all patients was 51±12.1 weeks. Majority of patients (50.0%) had 1-2 decades duration of illness. The number of total admission days and number of hospitalization of all elderly patients before and after the initiation of c-ECT are portrayed in Table 2. The average number of hospitalization and total admission days showed a statistically significant relation following the initiation of c-ECT [8,9,10]. The number of admission days and the number of hospitalization of male patients and female patients are strongly associated with p-value.

Table 2: C-ECT initiation during the observation period

Respondents	Number of admission days (mean)			Number of hospitalization (mean)		
	Before	After	p-value	Before	After	p-value
All patients (n=14)	64	17	0.001	4	2	0.001
Male (n=6)	57	12	0.003	3	1	0.002
Female (n=8)	67	15	<0.001	4	2	<0.001

Note: probability value, p<0.001

The study observed adverse effects of elderly patients in catatonia schizophrenia who underwent c-ECT and psychotic medication. The most common adverse effect among male and female elderly patients was headache, muscle ache, abnormal heart rate, nausea, and hypertension and memory loss.

Among them some were generally of mild intensity. After the first four ECT sessions, patients had a significantly lower risk of readmission. Patients who received second and third outpatient c-ECT sessions had a significantly lower number of admission days. The mean duration of the cerebral seizure on the electroencephalogram (EEG) during the third c-ECT session was range from 25-132s.

Two patients dropped out of the third session after 9 months because their family wanted them to continue in community hospital. The ECT device was not changed during the c-ECT sessions. No patient experienced a severe physical adverse effect during the c-ECT sessions.

DISCUSSION

Catatonia is a frequently reversible condition with systematic diagnosis and medication [11]. Numeral causes for catatonic schizophrenia were considered and investigated. Long periods of untreated catatonic states have been correlated with a poorer response to benzodiazepines [12]. It is also believed that the age of the patients contributed significantly to several factors. Catatonia is not often recognized in older patients and poorly understood [13].

A study stated that older patients were less likely to respond to ECT than younger patients. Higher risk of adverse events can be seen among older age patients when using benzodiazepines including an increased risk of sedation [14]. Two patients experienced severe adverse effects with lorazepam. Overall, many studies stated that the use of benzodiazepines is problematic in older patients with catatonia [15,16,17].

After the initiation of c-ECT, the numbers of hospitalization and readmission days were significantly reduced in majority of patients [18]. The current study results are consistent with previous studies which demonstrate the effectiveness of c-ECT in reducing the risk of catatonic schizophrenia [19,20]. C-ECT effectively manages psychiatric conditions by preventing relapse in elderly patients, stabilizing their mood and reducing the severity of symptoms [21]. It also reduces the subsequent hospitalization. The individualized treatment approach of c-ECT provided personalized benefits and reducing adverse effects.

The major objective of this study is to evaluate the effects of c-ECT and psychotic medication in depressed elderly patients with catatonic schizophrenia. It is also evaluated that the number of admission days and hospitalization of depressed elderly patients in catatonic schizophrenia. Majority of patients received bilateral electrode placement.

All the patients who received c-ECT for nearly 30 weeks achieved a sustained response. It is found that active treatments of c-ECT combined with medication are useful for the elderly patients with catatonic schizophrenia [21]. Some studies stated that c-ECT with neuroleptics is an efficacious treatment for preventing older patients with catatonic schizophrenia [22,23].

CONCLUSION

This study was limited by the small number of elderly participants. It was found that four out of fourteen patients had relapsed with neuroleptics and c-ECT. In a case report of UK, the unsuccessful treatment of catatonia in an elderly patient highlights several clinical implications for the elderly age group [24]. It is important to ensure the early use of medication and ECT in the elderly which improves the outcome. ECT is an effective acute treatment for depressed elderly patients in catatonic schizophrenia. Outpatient c-ECT for the treatment of catatonic schizophrenia is associated with less number of hospitalization and lower readmission risk especially for depressed elderly patients. This study highlights the effective treatment of c-ECT and medication in depressed elderly patients with catatonic schizophrenia.

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Conflict of interest

Authors of this article have no conflict of interest.

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