



## Retrospective Audit of ECTs in Adolescent Patients in a Tertiary Hospital

### KEYWORDS

ECT, adolescents, indications

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**ABSTRACT** Background: Electro Convulsive Therapy (ECT) is used in large number of indications in adult populations, but there is lack of data for use of ECTs as a treatment modality in adolescent age group.

Objective: Given the prevalence and severity of psychiatric disorders in adolescent age group, we decided to carry out a retrospective audit of ECTs given in this age group in last one year in a tertiary hospital.

Methods: The ECT records of last one year of adolescent patients (age group of 10 - 19 years) were studied and the socio-demographic data, indications, number of ECTs given, anesthetic agents used and side effects were recorded. The data was then pooled, tabulated and subjected to statistical analysis.

Results: In our audit, we found that ECTs were given to 64 adolescents in last one year. 72% patients suffered from schizophrenia and other psychotic disorders, 14% patients had mood disorders, 7.8% patients had mental retardation. There were no side effects noted.

Conclusions: Thus ECT is a useful and safe treatment modality in adolescent age group patients.

### Introduction:

ECT has been used for over 70 years for treating psychiatric disorders like severe, refractory depression, certain cases of schizophrenia and catatonia (1). In 1942, use of Electro Convulsive Therapy (ECT) in adolescent was first reported by Heuyer et al in France (2). Findings of retrospective studies prove that efficacy rate of use of ECTs are same in both adults and adolescents. An overall efficacy rates of 80% in mania, 80% in catatonia, 63% in depression and 42% in Schizophrenia have been found in adolescents(3). A study conducted about knowledge, experience and attitudes of psychiatrists and psychologists towards use of ECTs in adolescents by Ghaziuddin et. al. showed that they possessed minimal knowledge and confidence about use of ECTs in adolescents and considered it as last resort(4).

The use of ECT in minors has been prohibited by legislation in California even in the case of life-threatening emergencies such as neuroleptic malignant syndrome (1974; for minors aged <12 years), Tennessee (1976; age <14), Colorado (1977; age <15), and more recently, Texas (1993; age <16) (5). In New York the agreement of atleast 2 child psychiatrists is mandatory for use of ECT in minors (6). Age is not a contraindication for ECT according to both the American Psychiatric Association (7) and the American Academy of Child and Adolescent Psychiatry (8).

The adverse events of ECT are similar in both adults and adolescents(5). Usually mild and transient side effects like headache [rates range from 42% to 80%], nausea or vomiting [2% - 64%], generalized muscle aches, subjective memory problems [9% - 52%], and confusion [0- 18%] are seen. Uncommon ones include manic switch, hemifacial flushing and sinus tachycardia. No deaths attributable to ECT have been described in a young person (9). There is no evidence that ECT can cause damage to the developing brain (10) rather it has neuroprotective and neurotropic effects (11).

The aims of the following study was to 1) To study the indications of giving ECTs in adolescents, 2) To assess the safety and efficacy of ECTs in adolescents and 3) To study the complications and side effects related to ECTs.

### Materials and Methods

This was a retrospective audit of the ECT records carried out at the tertiary care hospital. The ECT cards of the adolescents (age group of 10- 19 years) of last one year from 1<sup>st</sup> June 2012 to 31<sup>st</sup> May 2013 were studied and data was collected. Information regarding socio-demographic data, indications for ECT, anesthetic agents and muscle relaxants used, number of ECTs given, medication history and any adverse events were collected and tabulated. The data was collected and tabulated in Microsoft Excel sheet. Further analysis was done using Excel only.

### Results

Total 64 adolescents in age group of 10- 19 years were given ECTs in last one year. All of them were given Modified ECTs with usual doses of anesthetics (propofol at dose of 0.5 mg/kg body weight) and muscle relaxants (succinylcholine at dose of 0.5 to 1 mg/kg body weight). Only one patient was given midazolam as muscle relaxant as he was suffering from paralysis due to poliomyelitis. The ECTs were given with the Medicaid ECT device delivering brief pulse stimulation with constant current at 800mA with 125 pulse/second frequency and pulse width of 1.5ms. The patients generally received ECTs thrice weekly initially and later on twice weekly followed by once a week ECTs. Majority of them belonged to age group of 16-18 years (64%). Only 2 patients were below 12 years of age. 35 of them were males (54.68%) and 29 were females (45.32%). Out of 64 patients, 47 were Hindus (73.44%), 15 were Muslims (23.44%) and 2 belonged to other religions [Table 1].

46 of them were suffering from schizophrenia and other psychotic disorders (71.88%). 9 of them had brief psychotic

disorder, 24 were suffering from paranoid schizophrenia and there were 3 patients of catatonic schizophrenia. 9 patients were suffering from mood disorders (14.06%). 5 patients of other indications included patients with mental retardation with behavioural disturbances [Table 2]. Out of 64 patients 33(51.56%) of them received 6-12 ECTs. Only 3 of them received >26 ECTs [Table 3].

### Discussion

The aim of our audit was to see use of ECTs in adolescents. 64 adolescents had received around 650 ECTs in last one year. We found that 64% of patients belonged between 16-18 years. There was almost equal distribution among sexes. Schizophrenia and other psychotic disorders (71.88%) were major indications for giving ECTs among adolescents.

The studies by Schneekloth et al. (12), Moise and Petrides (13) and Walter and Rey (14) have same findings that psychotic disorders are main indications for ECTs in adolescents and mood disorders in adults. All of them except 3 patients were given ECTs for acute management. Three of them were on maintenance ECTs indications being one was a case of paranoid schizophrenia who could not tolerate antipsychotics as he gets tardive dyskinesia with antipsychotics. Others were case of Mental Retardation with behavioral disturbances and paranoid schizophrenia respectively who were given once a month ECT as maintenance therapy. There were no adverse events noted. Thus we conclude that ECTs can be safely used in adolescents from our audit which included 64 patients.

**Table 1:**

Age (in years)	No. of patients (N=64)
10-12	2 (3.13%)
13-15	10 (15.63%)
16-18	41 (64.06%)
>18	11 (17.19%)
Sex	No. of Patients (N=64)
Male	35 (54.68%)
Female	29 (45.32%)
Religion	No. of Patients (N=64)
Hindu	47 (73.44%)
Muslim	15 (23.44%)
Others	2 (3.12%)

**Table 2:**

Diagnosis	No. of patients (N= 64)
Schizophrenia and other psychotic disorders	46 (71.88%)
Mood disorders	9 (14.06%)
Substance Related disorders	4 (6.25%)
Others	5 (7.81%)

**Table 3**

No. Of ECTs	No. of patients (N= 64)
4-6	16 (25%)
6-12	33 (51.56%)
13-26	12 (18.75%)
>26	3 (4.69%)

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