

# The Use of ECT in the Treatment of Psychiatric Disorders in a Teaching Hospital in Saudi Arabia

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**Objectives:** To determine the clinical use of ECT in treatment of different psychiatric disorders at KKHU.

**Design:** A retrospective clinical study of all inpatients given ECT over a ten years period.

**Setting:** Psychiatric Unit at King Khalid University Hospital, (KKUH).

**Subjects:** One hundred and twenty seven inpatients, 51 males and 76 females given ECT.

**Measures:** Data collection form for demographic characteristics and clinical parameters and global improvement scale.

**Results:** Usage ratios was 5.0% and female to male ratio 1.5:1 inspite nearly equal total admissions for both sexes. ECT was used primarily in more than 75% of cases for affective disorder and in 68.5% of cases, the indication was no response to medication. Seventy five percent of cases showed good or marked improvement, but 79% of non-responders were schizophrenic. The common age group given ECT was 19-30 years.

**Interpretations:** This study shows a shift in clinical use over time in developing countries of ECT from schizophrenia to be mainly used for affective disorders. More females are given ECT could be due to cultural emphasis on stigma in psychiatrically ill females.

**Conclusion:** Our results comply with recommendations set by the Royal College of Psychiatrists and the American Psychiatric Association for ECT clinical use. ECT is a valuable and safe treatment modality in psychiatry that should be mainly used in affective disorders and selectively in schizophrenia.

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Inspite of extensive scientific evidence supporting the efficacy of Electro-Convulsive-Therapy (ECT), introduced by Cerletti and Binin 1938, antipsychiatry movements still target ECT as an unproven, hazardous and inhumane treatment<sup>1</sup>. This has influenced the administrative authorities worldwide to restrict the use of ECT and guided psychiatrists to be more selective of patients who may benefit from ECT<sup>1-3</sup>. Studies examining the use of ECT, showed the clear shift over the years from being used for all functional psychoses particularly schizophrenia, to be used selectively and mainly for affective disorders, and selectively in Schizophrenic disorders which complies with the recommendations of the Royal College of Psychiatrists and the American Psychiatric Association<sup>1-8</sup>. Medline search revealed only two studies of the clinical use of ECT in the Arab Countries. Al-Haddad, et al and Daradkeh, et al showed that ECT was used less in affective disorders compared to USA and European Countries and more used in schizophrenic illness<sup>6,7</sup>. To the best of our search, no similar studies were reported in Saudi Arabia.

This is a retrospective descriptive study aiming at investigating the pattern and rate of use of ECT in a teaching hospital, including the rate of use of ECT, the criteria of patient selection, the clinical diagnoses and the response to ECT. Audit aspects of ECT administrations such as consent, records, premises, setting, treatment schedule, apparatus, pattern of stimulation, seizure monitoring, anesthesia and others were reported separately.

## METHODS

This retrospective study was carried out at KKHU. ECT was introduced at KKHU in 1983 and the machine used is a Seimens manufactured in Germany of the type Konvulsator 2077S producing brief-pulse current. Bilateral ECT is used with standard placement of electrodes and under general anesthesia using muscle relaxant usually Suxamthenonium. The decision to use ECT is taken by the consultant and consent has to be obtained from the patient and relatives. The treatment schedule used is either twice or three times per week according to the individual case. The ECT is

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prescribed in a course which includes up to twelve ECT sessions and each session may include up to two applications. Some cases may receive more than one course if indicated. KKUH follows the ICD diagnostic system and diagnoses comply with ICD 9 or 10 according to time of admission of each patient.

A data collection form was completed for all inpatients who had ECT during the period from 1985 to 1994 inclusive. Data included 1) *demographic information* about sex, age, nationality, residency, education, occupation and marital status, 2) *clinical information* about ICD diagnosis before ECT, final diagnosis after ECT, urgency of ECT, indications for ECT, associated physical disease, short and long-term response to ECT and the number of sessions before onset of improvement. Indications for ECT were categorized based on physicians notes into elective ECT (no response to medication) and ECT is first line treatment (emergency ECT) which included the patient is suicidal, the patient is stuporous, the patient is physically ill to use medication. No response to medication means that the patient was admitted and tried on drugs over a sufficient period of time without improvement, whereas first line or emergency ECT means that the patient was admitted only to be given ECT. The evaluation of the short-term response to ECT was also classified according to the physicians assessment into no or poor and good or marked response. This was based on clear documentation of the physicians and nurses of obvious change in mental status examination after treatment sessions. The long-term improvement was assessed at less than three months, 3-6 months and more than 6 months. Those patients who had more than one ECT course were also compared with those who had only one along with all of the above parameters.

## RESULTS

### Usage Rate

During the ten year period a total of one hundred and twenty seven patients were seen. Fifty one (40.2%) males and 76 (59.8%) females had one ECT course with a female to male ratio 1.5:1. Twelve (9.5%) patients had more than one ECT course, five had two courses and seven had three courses. To determine any change in the rate of ECT usage, the study period was divided into five year periods 1985-1989 and 1990-1994 and the percentages of patients given ECT out of the total admissions in each period were 2.4% and 7.9% respectively. The overall rate of usage of ECT during the study period was (5.0%) whereas for males it was (3.9%) and for females (6.1 %).

### Demographic Data

The age range was 15-60 years with a mean of  $27.9 \pm 9.23$ . One hundred and four patients (81.9%) were Saudis and 119 (93.7%) lives in urban areas. The majority, 65 (51.6%) were married. The level of education distribution showed that the majority were Secondary, University or higher level 65 (51.2%).

### Clinical Data

The main psychiatric diagnoses before ECT were major

depressive illness including unipolar, bipolar, postpartum and atypical depression 78 (61.4%), manic illness including bipolar, mixed states and postpartum mania 17 (13.4%), schizoaffective disorder 12 (9.4%), and schizophrenia 14 (11%), brief reactive and organic psychoses 4 (3.2%) and others 2(1.6%). Some of these diagnosis changed after ECT in that all cases of brief reactive and organic psychoses and one of the others category were re-diagnosed after ECT to be affective and schizoaffective disorders. There was an associated physical illness in 39 (33.3%) of cases.

ECT was given in 80 (63%) of cases as an elective treatment while in 45 (35.4%) as a first choice emergency treatment while in two cases this information was missed. In 87 (68.5%) of cases, the indication for ECT was no response to medication.

The session number after which improvement onset was noticed was clearly documented in 103 (81.1%) case records. Improvement onset was shown in 49 (47.6%) patients after 4-6 ECT sessions.

There was good or marked response to ECT in 96 (75.6%) patients. The twelve patients who had more than one ECT courses, seven (58.3%) only showed good or marked response in the 2nd or 3rd ECT courses. Long-term improvement was maintained in majority of cases 74 (58.5%) for more than 6 months and 3 (2.4%) patients lost for follow-up. The ECT course included an average number of application of 8.1.

## DISCUSSION

Although this is a retrospective study and the only one in Saudi Arabia at present, it reflects the trend of ECT clinical use in this hospital, which is broadly consistent with the Royal College of Psychiatrists and the American Psychiatric Association recommendations<sup>2,3</sup>, where more than 75% of cases given ECT were diagnosed affective disorders (whether before or after ECT). Further analysis still supports the above statement and shows that ECT was used mainly for major depressive disorders (61.4%) manic illness (15%), schizophrenia (11%) and schizoaffective disorders (10.2%).

Even though the diagnoses before ECT more appropriately reflect the trend of clinical use of ECT, there was no much discrepancy with diagnoses after ECT (final diagnosis). In fact these minor difference suggests that psychiatrists provisionally were not sure of the diagnosis of some cases, because of difficulty in assessment initially, but after ECT, they re-diagnosed these difficult cases to an appropriate indication for ECT. This is clearly shown in the brief reactive and organic psychoses patients who were re-diagnosed to be affective disorders after ECT. This is also shown to be the case for patients who had received more than one ECT course, where two cases diagnosed as mixed affective states before ECT but were re-diagnosed to be major depressive disorders after ECT.

Although these results are comparable to studies in Western Countries<sup>9-11</sup> they are inconsistent with, studies in other developing countries such as Bahrain, United Arab Emirates,



India, and Uganda, which showed that ECT was used for the treatment of schizophrenia in 60-75% of cases and for affective disorders in 19-39% of cases<sup>4,7</sup>. These differences may be explained by the fact that KKHU is a fairly new establishment compared to hospitals in other developing countries and it is a general hospital containing a psychiatric unit rather than a pure mental hospital and this has led to a more selective use of ECT.

On the other hand it may reflect that in our hospital ECT was used as a last resort, as the analysis of the indications for ECT showed in 68.5% of cases was because of no response to medication. But, again it cannot be a general trend as ECT was used even in presence of physical illness in 33.3% of cases. Another explanation that ECT is used more in schizophrenia in developing countries may be the need for a speedy response due to high demands on existing services<sup>7</sup>.

The total rate of ECT usage in this study (5.0%), is consistent with worldwide figures<sup>1,5,7-11</sup> but, the rate has increased over time during the study period from (2.4%) in 1985-1989 to (7.9%) in 1991-1994 which is still far below the rates in other developing countries (14-20%) such as India, Pakistan and Uganda<sup>4,5</sup>. This increase in rate over time may indicate that psychiatric beds at KKHU were more utilized for severe and resistant cases, that needed ECT. Generally, the rates are less for males (female to male ratio 1.5: 1) even though the total admissions for both sexes are nearly the same and this is less than that of U.K 2.27: 1, but higher than that of Bahrain 1.3: 1 and India 0.85:1. This can be explained by the Saudi cultural attitude towards psychiatrically ill females where the stigma is more exaggerated<sup>12</sup> and delays treatment which results in severe forms of psychiatric disorders where ECT is more likely to be given. The onset of response to treatment and improvement in 75.6% of cases reflects the general trend in other studies<sup>1,7,8,13</sup> and also supported by the finding that 79% of non-responders were found to be schizophrenics and schizoaffective patients. The low response for cases of more than one ECT course may be explained by their chronicity, severity, being resistant and being a less likely indication of ECT such as Schizophrenia. As majority of cases 58.5% maintained improvement beyond 6 months, this may be explained by the maintenance effect of drugs used after ECT, the severity of these cases indicated giving ECT and therefore responded well to drugs afterwards, or that resistant cases if given an ECT course, drugs efficacy will be enhanced<sup>14</sup>. But, six months may not be enough to follow up patients for relapse.

Concerning the age distribution of our sample, none was under the age of 15 and this is in compliance with world wide conservative attitude of using ECT in minors under fifteen<sup>3,15</sup>. The majority of cases 72.3% were under the age of thirty and the age group commonly given ECT was between 19-30 years (60.5%) compared to the same age group in Bahrain (51.1%)<sup>6</sup>. Although this is inconsistent

with findings in Western studies<sup>9</sup>, it may be explained by the distribution of the Saudi general population where more than 75.4% are less than the age of 30<sup>16</sup>, and therefore, few elderly patients are expected to be admitted.

About 82% were Saudis and this is expected as non-Saudis are rarely allowed to be treated at KKHU. Most patients 93.7% come from urban residency and this may be due to easy accessibility to the hospital.

Generally, a Saudi married female, with medium level of education, living in City and not working with a diagnosis of affective disorder is the likely psychiatric patient to have ECT in our hospital.

## CONCLUSIONS AND RECOMMENDATIONS

**This study shows that in KKHU we generally comply with the recommendations set by the Royal College of Psychiatrists and the American Psychiatric Association. It also shows that ECT usage rate, indications and improvement response is comparable to that of Western countries and the following recommendations are suggested:**

- 1. It is essential that ECT should remain freely available on the same terms as any other treatment until drugs of comparable efficacy and safety are developed.**
- 2. ECT is a valuable and safe treatment to be used selectively in affective disorders and other resistant psychotic conditions.**
- 3. Psychiatric services need to study their pattern of ECT clinical use and accordingly set standards and criteria for ECT indications.**
- 4. Further research in the same area is essential in other Saudi psychiatric institutions as for comparison and future improvements of ECT use all over the Kingdom of Saudi Arabia.**

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