



# SETTING UP AN ELECTROCONVULSIVE THERAPY (ECT) DEPARTMENT IN THE PSYCHIATRIC HOSPITAL “DR. GH. PREDA” OF SIBIU

CIPRIAN BĂCILĂ<sup>1</sup>, CLAUDIA ANGHEL<sup>2</sup>

<sup>1</sup>“Lucian Blaga” University of Sibiu, <sup>1,2</sup>“Dr Gh. Preda” Psychiatric Hospital of Sibiu

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**Abstract:** Electroconvulsive therapy has a long history, with periods of approval and of contradiction. The electroconvulsive therapy department in our hospital has a long tradition: it was initiated in 1940 and used for a period of five decades, after which it was abandoned due to several reasons. Starting with the year 2019, it was desired to create a new ECT department that corresponds to the new modern requirements of ECT's application (under anesthesia). This department was built according to the Portuguese model of the ECT department with the main purpose to increase the accessibility of psychiatric patients to this type of treatment, to decrease the number of hospitalization days for the patients with severe psychiatric disorders and also to train new professionals in this field. Although many clinical studies have shown their effectiveness in treating psychiatric pathology due to preconception and stigmatization, nowadays this treatment is still seen with great reluctance.

## INTRODUCTION

The Psychiatric Hospital “Dr. Gheorghe Preda” of Sibiu was built in 1863, being the first institution of its kind in South-Eastern Europe, which had at that time 200 beds. During all this time, the main objective of the medical team from the hospital was to improve the patient's mental state with the help of an effective treatment. In 1938, in Rome, Ugo Cerletti and Lucio Bini, from the Clinic for Nervous and Mental Disorders, developed a new therapy to treat patients with psychiatric pathology, used to be known as electroshock or shock therapy. Under these circumstance, in 1940 the director of the Psychiatric Hospital at that time, dr. Liviu Ionasiu, start up, for the first time, an electroconvulsive department with an electric shock device, to treat the hospitalized patients. That device was one of the four used in the Romania of those times. This technique was stopped after it has been used for several decades, until today. Starting with 2019, in our hospital, it was decided to establish a new electroconvulsive department that had to be equipped according to the new regulations in effect due to the nowadays development of this technique (applied under anesthesia).

The purpose of creating this department was the desire to improve the healthcare provided to patients. Though it is still perceived, nowadays in our society, as a controversial treatment and, of course accompanied by stigma, we have tried to make our community aware of the benefits of this therapy and its importance. This controversy stems from many factors: the dramatic nature of the therapy, using electricity to induce seizures; its use on mentally-ill patients, with the question of proper and adequate informed consent; and the serious side effects and perceived abuses associated with the Sanity, Madness and Family“ (R.D. Laing and A.Esterson), use of ECT in the past.(1)

The antipsychiatric movement played an important role in stigmatizing this technique. It was helped by books published in USA like: “The Myth of Mental Illness”

(psychiatrist Szasz Thomas), “Asylums” (sociologist Goffman Erving), “Law, Liberty and Psychiatry” (psychiatrist Szasz Thomas), in France “Raison and Violence” (Ronald David Laing and David Graham Cooper), “L’histoire de la folie” (Michael Foucault), “L’institution en negation” (Franco Basaglia), in England “Psychiatry and Anti-Psychiatry” (David Cooper) or movies like “One Flew Over the Cuckoo’s Nest”.

Currently, such a department is needed because of the efficiency of the electroconvulsive therapy. The effectiveness of this treatment has been demonstrated in many studies and should be an option for first-line treatment when:

- A faster or more probable response is needed
- Nature and severity of disease impose (catatonia, major depressive and mania with psychotic features)
- Patients are at risk to harm themselves or others
- When electroconvulsive therapy is safer than alternative treatments (patients psychically debilitated, the elderly, during pregnancy).(2)

It is possible to use electroconvulsive therapy as a secondary indication when patients do not respond to the pharmacological treatment due to:

- Lack of clinical response
- Intolerance of side effects
- Deterioration in psychiatric condition
- Emergence of suicidality
- Emergence of starvation (2)

The importance of ECT is proven by several studies in which it has been demonstrated that patients who have not responded to one or more adequate antidepressant medication trials have a lower probability of responding to ECT compared with patients treated with ECT without having received an adequate medication trial during the index episode.(3,4)

ECT is applied in severe depressive illness, catatonia, in a prolonged or severe manic episode, schizophrenia,

<sup>1</sup>Corresponding author: Ciprian Băcilă, Str. Morilor, Nr. 43, Sibiu, România, E-mail: bacila\_c@yahoo.com, Phone: +40723 000227

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schizophreniform disorder, severe affective and psychotic conditions secondary to medical and neurologic disorders, in neuroleptic malignant syndrome, Parkinson's disease. Also, electroconvulsive therapy can be applied to a special populations, for example:

- Elderly: it may be used, regardless of age; doses of anticholinergic, anesthetic and relaxant agents may need to be modified; induced cognitive dysfunction may be greater;
- Pregnancy: it can be used in all three trimesters but, due to risk of premature birth, during the third trimester, it should be done in or close to a delivery room. The risks to the fetus are likely to be less than the risks of alternative treatments and also than the risk of untreated mental illness. If the pregnancy is high risk or close to term, additional monitoring / fetus ECG monitoring is indicated at the time of ECT;
- Puerperium: Breastfeeding does not need to be interrupted during ECT. Anesthetic agents administered with ECT generally pose little risk to the nursing infant;
- Children and adolescents;
- And in some special situations like patients with cardiac pacemakers, implanted cardiac defibrillators and cochlear implants, with the mention, that each time a cardiologist, an Ear Nose and Throat specialist and the device manufacturer should be consulted, although this is usually unnecessary with the modern devices.

In order to carry out this project, the following aspects were taken into account: the space necessary for the patient's circuit, the medication needed to apply the therapy and the equipment used in order to carry out the therapy under maximum safety conditions for the patient.

The electroconvulsive department is composed of three rooms: a waiting room, a treatment room and a recovery area (post-ECT). The clinic is clean, comfortable and provides a welcoming atmosphere. Also, it needs to have an office for the medical team. Here, there will have to be the following protocols relating to:

- Preparing the patients for ECT
- Who may obtain consent in the clinical team who refer to the clinic
- Monitoring the patients immediately after ECT
- The patient's medication during and after treatment
- What information staff should give to day patients before they are discharged.

In order to follow the working rules, the staff should be trained about compliance with the rules for surveillance, prevention and limitation of infections associated with medical care.

Also, in order to be more approachable and to facilitate the access of people with locomotor disabilities, it is needed to have access and facilities for this type of patients.

The Waiting Area has to have a space large enough to accommodate the throughput of patients and their relatives, a range of distractions (like an outside window, pictures, games or magazines). It is very important that, this area, has no visibility to the treatment area (while the treatment is taking place) in order to maintain the confidentiality of the patient performing the technique.

The Treatment Area has to have: an adequate size according to the norms of the Romanian medical system, an easy access to telephone, update protocols every two years, displayed in the treatment room. There will be the following protocols for:

- How and where the initial and subsequent doses of Dandelone are stored. If subsequent doses are not stored in

the clinic, they are accessible within 5 minutes

- The management of cardiac arrest,
- The management of anaphylaxis,
- The management of malignant hyperthermia,
- Maintenance/continuation of ECT which incorporates provision for regular reviews of the patient's clinical status, the frequency of treatment,
- On the choice of laterality for ECT,
- The management of a prolonged or tardive seizure
- When to restimulate a patient after a brief or missing seizure,
- When to discontinue treatment when no clinical response is seen,
- A stimulus dosing protocols that is in accordance with the ECT Handbook,
- The treatment of elderly people, young people, pregnancy.(7)

As well in this room it needs to be a clock with a second hand to assess the correct duration of the seizure. It is the duty of the psychiatrist to time the duration of the seizure and to write it down in the patient's file.

For the period of anesthesia, if the nitrous oxide and/or anaesthetic inhalation are ever used, then it must be equipped with scavenging equipment and agent monitoring this room.

The medical staff from the two rooms must easily communicate, so it is necessary to have a communication space between the treatment room and the recovery room.

Also, the treatment room has to have a secure drug storage cupboard and a secure drug fridge with temperature control.

The room has to be soundproofed (compared to the waiting room).

The Post-ECT Waiting Area has to be large enough to accommodate the throughput of patients lying on trolleys with additional space to manoeuvre and a large doorway to do this.

The equipment in the Post-ECT Waiting Area must be made up of:

- One trolley or bed/ patient, that has braked wheels and can be rapidly be tipped into a head-down position,
- A fully equipped emergency trolley with adequate resuscitation equipment and a defibrillator,
- An emergency cricothyroidotomy kit,
- An NIBP monitor and a means of measuring temperature,
- Oxygen cylinder mask and self-inflating bag, and at least, one full spare cylinder in both the treatment and recovery areas,
- At least one suction machine, preferably one in the treatment room, one in the recovery room,
- Pulse oximeter,
- Capnograph,
- ECG monitor,
- Means of measuring blood glucose concentration, blood pressure,
- Provision is made for maintaining anesthesia, ventilation and monitoring in the event that transfer to a Critical Care Area is needed,
- An ECT machine that is capable of providing stimuli according to current guidelines. Stimulus settings on this machine may be altered easily and quickly. The ECT machine has to have two-channel EEG monitoring facilities.

This room also needs an area provision for refreshments for patients. Therefore, after the patient has regained consciousness and his vital functions are within normal limits, the patient will be guided to this area. This happens

because of the pre anaesthetic fasting and has the role of preventing hypoglycaemia and dehydration.

In the electroconvulsive therapy –team must be at least one trained nurse placed in the treatment room, one trained nurse in placed in the recovery area, one experienced anaesthetist and a trained anaesthetic assistant present during treatment and recovery, a trained psychiatrist present during treatment with a competency document in ECT.

In addition to the anaesthetist, it has to be one member in staff trained in at least Immediate Life Support.

There has to be also a back-up staff easily available to assist in an emergency situation.

The ECT-team will have the following duties;

- Will work in multidisciplinary team work,
- Must have a managerial structure that clearly defines the responsibility of each member,
- Must have regular meetings to discuss issues related to the medical insurance system, clinical and administrative issues,
- The roles and responsibilities of each member should be clearly defined,
- The same team will work weekly to ensure continuity of treatment,
- Will play an important part in the department's audit, in the training programme for future professionals and in conducting clinical studies highlighting the benefits of electroconvulsive therapy.

The medical team will need to be properly trained and knowledgeable in the following areas:

- Psychiatric pathology,
- Basic Life Support technique,
- The national health insurance system,
- The regulations of the internal procedure of the hospital,
- The organization and functioning procedure in the hospital,
- The Law of Mental Health 487/2002,
- The electroconvulsive therapy that will be administered only by a psychiatrist with training in the application of this technique.

The department has a protocol in place for ensuring there is someone responsible for assessing and preparing the patient for ECT.(7)

All prospective ECT patients receive a formal documented assessment.

There will be recorded:

- an assessment of the risk / benefit balance of having ECT,
- a mental state examination,
- the patient's Mental Health Act status,
- a detailed medical history,
- the patient's weight,
- current medication and drug allergies ,
- also and identified the anaesthetic risk (this includes the ASA grade of the patient- any variation in the ASA grade of the patient is recorded before the treatment session), the patient's ethnicity,
- an assessment of orientation,
- an assessment of memory by using a standardized cognitive assessment tool and subjective questioning,
- a physical examination (which includes the cardiovascular, respiratory and neurological systems, a venous thromboembolism assessment and a pregnancy test where applicable.)

Before each treatment, the following checks are carried out and recorded by the staff:

- The patient will be asked when he/ she last ate/ drank to correctly evaluate the time required for the pre-anaesthetic

fasting (recommended by the anesthetist),

- The patient's identity and a bracelet with his name will be attached,
- Allergies of the patient and will be passed on his bracelet,
- The patient will be monitored (blood pressure, pulse, temperature) and encourage to empty their bladder,
- All metal objects are removed from the patient,
- The patient is asked to remove hearing aids and glasses/ contact lenses, orthopedic devices.

In the ECT-team the anaesthetist has an important role to check that there have been no problems with previous anaesthetics at each treatment.

Within the ECT department, a patient who has therapeutic indications for electroconvulsive therapy and decision-making ability, he/she will be able to decide, whether or not, wants to sign the informed consent to follow the treatment. In case of a patient who does not have the capacity to understand and decide for the need of this treatment, the directive will be to consult the patient's lawyer, legal guardian or the judge's intervention. (8,13)

As far as is practicable, patients and their families should be involved in discussions about the treatment, its risks, its possible benefits and alternatives. Where the risk of ECT remains high, the patient and, where appropriate, the family should be informed and then involved in the careful balancing of risks and benefits.(8)

The consent must be given freely and be based on an understanding of:

- the purpose and nature of the treatment, the selection of electrodes placement,
- the likely risks and effects of treatment, including its likely success,
- the alternatives to the treatment,
- the likely consequences of not receiving it,
- that consent can be withdrawn at any time,
- that new consent is required for further treatment (13)

The most important thing is that the patient makes a free choice and feels free from pressure. The patient will give his/her consent for a course of treatment and the maximum number of treatments should be noted.

The ECT team verifies and records the consent of each patient before applying each treatment.

Where a person is detained under the Mental Health Act and is unable to give consent, it is good practice to involve the relatives fully, during assessment and before invoking the "second opinion" procedure.(8)

Continuing the tradition by the emergence of this new department has led to an improvement in the medical health care in psychiatric pathologies and also increased the accessibility of patients for the indication of ECT in severe psychiatric pathology.

Due to the fact that, with the help of electroconvulsive therapy, the mental status of the patient improves in a relatively shorter time compared to the pharmacological treatment in certain psychiatric pathologies, the organization of this department caused the decrease of the number of days of hospitalization, implicitly lowering costs per patient for each hospitalization.

The Cochrane ECT Review conducted by Tharyan and Adams (the Cochrane Schizophrenia Group ECT Review) (16) includes people with schizophrenia, schizo-affective disorder or chronic mental disorder (non-affective) examined the effectiveness of ECT in comparison with placebo, sham ECT, pharmacological interventions and non-pharmacological interventions (for example, psychotherapy). The primary

outcomes of interest were clinically meaningful benefits in overall functioning, hospitalisation status, changes in mental state, changes in behaviour, social and occupational functioning, remission of symptoms and discharge from hospital or care.(14,16,17)

In order to demonstrate the effectiveness of this therapy, in Sweden, a study was performed on 486 patients in which ECT was applied to patients for major depressive disorder. The risk of relapse/recurrence during one year after ECT was 35%.(18)

Also, Continuation/Maintenance ECT (C/M-ECT) has been shown to be an effective treatment in preventing relapse in patients successfully treated with ECT.(17)

Swoboda (19) found that for patients with an affective disorder and schizoaffective disorder following successful ECT treatment, 33% of patients who received C/M-ECT relapsed (defined as being readmitted to hospital) while 67% patients who had not received C/M-ECT relapsed after 12 months.

It has been shown that there is a cognitive impairment that occurs immediately after ECT is applied or during the sessions. It has also been proven that the intensity of cognitive impairment is more important when the electrodes are applied, during therapy, bilaterally compared to those applied unilaterally. Regarding the unilateral application of electrodes, cognitive impairment is highlighted when the electrode is applied to the dominant hemisphere.(20) ECT can affect memory for events that occurred before ECT (retrograde amnesia) and events that take place after ECT (anterograde amnesia). Recent evidence has suggested that retrograde amnesia is greater for impersonal than for personal memory.(21)

Electroconvulsive therapy is an effective short-term treatment for major depressive disorder and should be considered in patients who have not responded to antidepressant therapy.(5,6)

Electroconvulsive therapy may also be considered in situations when a particularly rapid antidepressant response is required, such as in pregnancy and in those with comorbid medical conditions that preclude the use of antidepressant medications.(7,8) Antidepressant medications continued during the ECT course are able to enhance antidepressant response and also to reduce the risk to relapse when ECT is stopped.

Electroconvulsive therapy may be considered as a first-line treatment for severely depressed patients with severe psychomotor retardation (associated with food refusal leading to nutritional compromise and dehydration), active suicidality and psychotic features.(9,10,11,12)

In occasional circumstances, ECT may be used for people with severe mania or in less disturbed people with mania who have a slow or inadequate response to medication and may be a safe alternative to high dose neuroleptics.(13)

In schizophrenia, the APA (14) recommend that ECT could be used when patients are treatment resistant or in a catatonic state and when the psychotic symptoms in the current episode have an abrupt or recent onset.(2) The comparison of the different antipsychotics established the supremacy of ECT-augmented clozapine treatment against other typical and atypical antipsychotics.(15)

The utility of ECT in neuroleptic malignant syndrome (NMS) is well recognised, despite the absence of randomised controlled data (2) (benefits up 90 % of cases). Particular care is required in the anaesthetic management of patients with NMS, as autonomic instability is a key feature.

ECT has marked anticonvulsant properties and its use as an anticonvulsant may be of value in patients with intractable epilepsy or status epilepticus that is unresponsive to pharmacologic treatment. In Parkinson's disease, ECT improves

the motor symptoms of Parkinson's disease, even in the absence of a psychiatric disorder, especially in patients who are refractory to pharmacological treatment or develop intolerable medication side-effects. In a small randomised controlled study in patients with severe "on-off" phenomena, ECT was more effective in prolonging the duration of "on" periods.(22)

Electroconvulsive therapy is a low-risk procedure with a mortality rate similar to that of anaesthesia for minor surgical procedures, despite its frequent use in elderly people and those with major medical problems.(23,24) APA stated that a reasonable current estimate of the ECT-related adverse effects of ECT mortality rate is 1 per 10 000 patients or 1 per 80 000 treatments.(2) This must be set in the context of any risks involved in not having ECT. For some people, morbidity and mortality rates with ECT are believed to be lower than with some antidepressants.(23)

### CONCLUSIONS

The ECT has evolved into a complex medical procedure that requires a therapeutic team (psychiatrist, anesthetist, nurses). In order to have an outcome success of electroconvulsive therapy, it is necessary for the entire therapeutic team to stay informed of the advances in the practice of ECT.

Even if the ECT-team has all the knowledge and ability to explain in details the technique of applying electroconvulsive therapy, a big issue in this department is the signed consent. When the informed consent request is required and the patient signs/ refuses it, we must take into account the cultural habits and beliefs in which they have been educated regarding electricity and head touch. Also, if the patients were detained in psychiatric hospitals and they suffered different physical abuses in which electricity was involved (against their will) they develop resistance to the application of electroconvulsive therapy.

The electroconvulsive therapy department is a necessity in a psychiatric hospital due to its importance and effectiveness in the treatment of severe psychiatric pathology.

Electroconvulsive therapy has the specificity of decreasing the time course of a psychiatric pathology, therefore increasing the quality of life and family reintegration.

Also, lowering the costs of a long-term hospitalization (due to the recovery in a shorter time) results in medical leave with fewer days off, therefore a better socio-professional reinsertion.

The emergence of this department also determines to prepare new future professionals in the medical field in order to develop new centers of this type.

In order to increase the number of patients and their accessibility to this department, the therapeutic team has an obligation to find the necessary means so as to the knowledge of the ECT technique is shared and explained to local community in order to overcome the stigmatization which, unfortunately, this technique "has enjoyed" over the years due to several factors.

The therapeutic team administering ECT needs to have mastered the following knowledge levels or competencies:

- a) Indications for the use of ECT;
- b) Risk-benefit analysis;
- c) Patient selection and evaluation;
- d) Consent procedures for both voluntary and involuntary patients;
- e) Preparation of patients;
- f) Types and use of ECT equipment;
- g) Techniques of ECT administration;
- h) Anesthetics and muscle relaxants;

- i) Airway management and oxygenation;
- j) Bite-blocks and nerve stimulators;
- k) Electrode placement;
- l) Stimulus parameters and dosing, including the concept of threshold;
- m) Monitoring of EEG and motor convulsions;
- n) Electrophysiological monitoring of heart rhythms and blood pressure;
- o) Management of missed and prolonged seizures;
- p) The concept of inadequate seizure;
- q) Emergency use of ECT;
- r) Management of medical emergencies during ECT;
- s) Documentation of inter-ECT interval progress.(25)

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