

**THE EFFECT OF PROGRESSIVE RELAXATION
TECHNIQUE ON THE PSYCHIATRIC PATIENTS'
ANXIETY LEVEL BEFORE ELECTROCONVULSIVE
THERAPY**

A Thesis

**Presented to the Faculty of Nursing, Alexandria University
In partial fulfillment of the requirement for the degree**

Of

Master of Nursing Sciences

In

Psychiatric Nursing and Mental Health

By

**Maamoun Talal Kahel
B.Sc. Nursing, Tishreen University**

2009

**THE EFFECT OF PROGRESSIVE RELAXATION
TECHNIQUE ON THE PSYCHIATRIC PATIENTS'
ANXIETY LEVEL BEFORE ELECTROCONVULSIVE
THERAPY**

Presented by

Maamoun Talal Kahel

For the Degree of

Master of Nursing Sciences

In

Psychiatric Nursing and Mental Health

Examiners' Committee:

Approved

Prof. Dr. Sanaa Abdel-Aziz Emam

.....

Prof. Dr. Hoda Mohamed Salama

.....

Prof. Dr. Magdala Habib Farid Maximos

.....

Advisors' Committee:

Prof. Dr. Sanaa Abdel-Aziz Emam

Dr. Maha Mohamed El-Sayed Gaafar

Approved

.....

.....

SUPERVISORS

Prof. Dr. Sanaa Abdel-Aziz Emam

Professor of Psychiatric Nursing and Mental Health

Psychiatric Nursing and Mental Health Department

Faculty of Nursing

Alexandria University

Dr. Maha Mohamed El-Sayed Gaafar

Lecturer of Psychiatric Nursing and Mental Health

Psychiatric Nursing and Mental Health Department

Faculty of Nursing

Alexandria University

تأثير تقنية الاسترخاء التتابعي على مستوى القلق عند المرضى النفسيين قبل المعالجة بالتخليج الكهربائي

رسالة

مقدمة للدراسات العليا بكلية التمريض - جامعة الاسكندرية
استيفاء للدراسات المقررة للحصول على درجة

الماجستير في العلوم التمريضية

في

التمريض النفسي والصحة النفسية

مقدمة من

مأمون طلال كحل

بكالوريوس تمريض

كلية التمريض – جامعة تشرين

٢٠٠٨

تأثير تقنية الاسترخاء التتابعي على مستوى القلق عند المرضى النفسيين قبل المعالجة بالتخليج الكهربائي

مقدمة من

مأمون طلال كحل

للحصول على درجة

الماجستير في العلوم التمريضيه

في

التمريض النفسي والصحة النفسية

الموافقة

لجنة المناقشة و الحكم على الرسالة

أ.د سناء عبدالعزيز إمام

أ.د هدى محمد سلامة

أ.د مجدة حبيب فريد مكسيموس

لجنة الإشراف على الرسالة

أ.د. سناء عبدالعزيز إمام

د. مها محمد السيد جعفر

الموافقة

.....

.....

المشرفون

الأستاذة الدكتورة / سناء عبد العزيز إمام

أستاذ التمريض النفسي والصحة النفسية

كلية التمريض

جامعة الإسكندرية

الدكتورة/ مها محمد السيد جعفر

مدرس التمريض النفسي والصحة النفسية

كلية التمريض

جامعة الإسكندرية

INTRODUCTION

Electroconvulsive therapy (ECT) has been used since the middle of the 20th century and continues to have an important role in clinical psychiatry. It is estimated that approximately 100,000 patients receive ECT annually in the United States (USA).⁽¹⁾ In New Zealand, an equivalent of 7.5 per 100,000 population receive ECT every year.⁽²⁾ The total amount of ECT sessions in the Netherlands was approximately 13,500 in 2008.⁽³⁾ In all Egypt, almost 965 psychiatric patients received ECT in 2007 in the 5 main psychiatric hospitals. Out of this number about 289 psychiatric patients received ECT in 2007 in “Al Maamoura Hospital for Psychiatric Medicine” in Alexandria,⁽⁴⁾ and almost 260 psychiatric patients received ECT in 2008 in the same hospital.⁽⁵⁾

Electroconvulsive therapy (ECT) is one of the most effective and rapidly-acting treatments for many psychiatric conditions, it is used mainly in the treatment of severe depressive disorders, particularly for psychotic depression, or for severely depressed patients who are at risk of suicide or at risk of death because of their refusal to eat or drink.⁽⁶⁾ It has also an important role in the treatment of other specific psychiatric conditions such as catatonic schizophrenia and bipolar disorder, and when medication has not been effective or the symptoms are severe, i.e. it is not possible to wait for the effects of medication to become apparent.⁽⁷⁾ It is also safe and effective in older patients and pregnant women.⁽⁸⁾ In spite of its safety, efficacy, and beneficial results, ECT can induce some immediate side effects as memory impairment, confusion, muscle ache, and headache that are reversible and temporary.⁽⁹⁻¹¹⁾

ECT is a therapeutic procedure which involves the passage of an electric current across the head of a person undergoing general anaesthesia to induce a convulsion.⁽⁶⁾ ECT is usually given as a course of six to twelve treatments two or three times a week, and can be conducted either bilaterally or unilaterally, bilateral placement usually yields a more rapid therapeutic response, while unilateral placement results in less marked cognitive adverse effects either in the first week or weeks after treatment.⁽¹²⁾

The direct action of ECT is unknown, but there are many theories which tried to explain how it works. The *psychoanalytic theory* propounded that ECT has its effect by assisting the process of repression by helping the patient to bury the original reason for mental illness.⁽¹³⁾ The *learning theory* assumed that the ECT has a punishment role for modifying the patient's behavior.⁽¹⁴⁾ Another theory believed that ECT acts as anticonvulsant because its administration increases the brain threshold.⁽¹⁵⁾ The physiological theories focused on the modulation of neurotransmitters and neurotrophic factors that ECT can induce, i.e. increase in serotonin and dopamine level and regulates neuron cells strength, growth, and survival, as well as norepinephrine and serotonin receptors expression.^(16, 17)

The majority of psychiatric patients (90%) describe ECT as a frightening treatment, and they experience high level of anxiety before receiving it or when the decision to receive it is made.⁽¹⁸⁾ This high level of anxiety may be due to patients' lack of information about how the ECT works, its efficacy, and side effects, or they may have a false information that lead them to perceive it as a punishment for their unacceptable behavior. In addition, patients may not be asked to sign the informed consent or may be coerced to have ECT which can reinforce the idea that they are punished. They may further believe

Introduction

that ECT causes severe pain, brain damage, personality changes, or death which in turn increases their level of anxiety and fear.^(19, 20)

Electroconvulsive therapy suffers a lot of misunderstanding and negative population attitudes and beliefs, e.g. “Being inhuman” or that “patients will depend on it for ever”⁽²¹⁾. Unfortunately some psychiatrists and psychiatric nurses hold a negative view and attitude toward it, which affects the patients’ attitude toward ECT and increases their level of anxiety.⁽²²⁾ ECT also acquired a lot of stigmatization from the media and movies which show it as “inhumane”, “barbaric”, or “punishment procedure”.⁽²³⁾ This makes 94% of the families of patients who undergo ECT and the patients themselves perceive it as a frightening treatment and feel stigmatized which increases their apprehension and anxiety.⁽¹⁸⁾

Furthermore, the hospital staff is sometimes forced to seclude the patients for hours before the session of ECT to ensure the patients’ fasting, and patients may move from their ward to the center of ECT and wait for long time where they may see each other receiving ECT. All these factors contribute to patients’ fear and anxiety. The adverse effect of confusion and memory loss associated with the course of treatment, seeing other patients after receiving ECT, as well as their own past traumatic experience with it, all play a role in increasing patients’ anxiety level and in turn affects the patients’ ability to cope and increasing their refusal and defense against ECT. This may be expressed in the form of aggression, agitation, or withdrawal...etc.

A psychiatric nurse has an important role in preparing the patients who undergo ECT physiologically and psychologically, especially in controlling patients’ anxiety.⁽²⁴⁾ As well, she has to explain the procedure to each patient, answer their question, correct their false information, and give reassurance and support.⁽²²⁾

Relaxation techniques are part of the nursing interventions that the psychiatric nurse can use to manage the patients’ anxiety. Relaxation is an active process that needs to be undertaken consciously. True relaxation involves the mind as well as the body through various ways. Relaxation can help reducing tension and anxiety, relieving pain and help to boost the body’s immune system. Most relaxation techniques involve deep breathing and awareness of muscle tension; and gradually allowing any tension to escape.^(25, 26)

Progressive relaxation technique (PRT) involves isolating, tensing, and relaxing different muscle groups. It often begins with deep breathing and involves tensing each muscle group for 10 seconds and then relaxing it for 10 seconds while the body is in a comfortable position and eyes are closed. PRT is intended to relax all muscles of the body which are then followed by decreased manifestations of anxiety, fear and stress.^(27, 28) Progressive relaxation technique is effective in relieving the anxiety of patients in different situations. The psychiatric nurse can easily apply this technique to manage patients’ anxiety and apprehension.

The aim of this study is to determine the effect of progressive relaxation technique on the psychiatric patients’ anxiety level before electroconvulsive therapy.

REVIEW OF LITERATURE

History of electroconvulsive therapy

Convulsive therapy is one of the oldest treatment modalities for mental illness. The generation of seizures- by either chemical or electric means- to bring a therapeutic effect has appeared in various guises through the centuries.⁽²⁹⁾ In the 16th century in Switzerland, Paracelsus was using seizures induced by camphor to treat psychiatric illness.⁽³⁰⁾ In 1745, Dr Jean LeRoy in France was treating patients with static electricity (this is unlikely to have produced a true, therapeutic convulsion, but may have helped in some psychosomatic conditions). Dr Robert Whytt of London described similar efforts in his 1751 book on the "nervous, hypochondriac, or hysteric".⁽³¹⁾

The London Medical Gazette, in 1785, published an account by Dr William Oliver of two manic patients in whom he had induced seizures with camphor taken by mouth, and around the same time Carl von Weickhardt in Germany and Dr Leopold von Auenbrugger in Vienna reported a number of similar cases.⁽³⁰⁾ In 1917, electrotherapy was revisited with the use of faradic (non-convulsive) therapy by Dr Leonard Yealland in London to treat men suffering "shell-shock" (the stress of battle).⁽²⁹⁾

In 1934 Dr Ladislaus von Meduna of Budapest produced fits using "Metrazol" (pentylenetetrazole, a central nervous system stimulant) to treat catatonic schizophrenia on the basis of the dubious observation that epilepsy was rare in those with schizophrenia. Then this form of convulsive therapy was wide- spread in Europe in the 1930s.⁽³²⁾ Doctors Ugo Cerletti and Lucio Bini in 1938 induced successfully convulsions by electricity (bilaterally) for the purpose of eliciting seizures to treat mental illness. This was introduced to the USA in 1940.⁽³³⁾

Muscle relaxant was introduced to moderate the vertebrae-cracking force of the convulsions (modified ECT) in 1940. In the early 1940s, it became customary to anaesthetize patients with barbiturate injections.⁽³⁴⁾ Max Fink, in the 1950s, was one of the most important figures in the history of ECT, he was the first one to apply rigorous scientific research methods on ECT, which gave the treatment a scientific legitimacy. The first controlled study of unilateral ECT was in 1958.⁽³⁵⁾ The hypothesis that seizure activity is necessary and sufficient for the efficacy of ECT is upheld in 1960. In 1960s, randomized clinical trials of the efficacy of ECT versus medications in the treatment of depression yield response rate that are significantly higher with ECT.⁽³⁶⁾

The anti-psychiatry movement and the promise that pharmacology would cure mental illness contributed to a decline in ECT use in the ensuing decades (late 1960s and early 1970s). The anti-psychiatry movement was largely a by-product of popular philosophical ideology of the time, negative views that mental illness was a mere invention, and negative views of ECT as a brutal practice.⁽³³⁾ In spite of negative media depiction contributing to a decline in ECT use, ECT has shown a strong comeback in 1970s, which is a testament to its continued efficacy and safety.⁽³⁴⁾

The American Psychiatric Association (APA) published the first force report on ECT in 1978 with the aim of establishing standards for consent and the technical and clinical aspects of the conduct of ECT. In 1985 the National Institutes of Health and National

Institute of Mental Health Consensus Conference on ECT endorsed a rule for the use of ECT and advocated research and national standards of practice (such as patients' consent and the use of muscle relaxant and anesthesia).⁽³⁶⁾

Mechanism of action

As there is a lack of understanding the causes of the common mental disorders, so there is a lack of knowledge about the mechanisms of how ECT works or what the electrically stimulated seizure does to the brain. During the last few decades, researchers have been attempting to identify the effectiveness of ECT and to understand how it works. There are many theories that try to interpret how ECT works.^(37, 38)

The psychological theories considered the relationship between memory impairment and the direct action of the electrical stimulus, since amnesia was the most prominent side-effect of ECT. Much debate centred on whether amnesia was, in fact, the mechanism for improving thought and mood. *The psychodynamic theories* which refer the cause of mental disorders to disturbed early life experiences, encouraged that view, because when memories of these experiences surfaced in later life and became intolerable, the amnesia induced by ECT successfully erased them.⁽³⁹⁾ Alternatively, *the psychoanalytic theory* propounded that ECT has its effect by assisting the process of repression, in other words, ECT helps the patient to bury the original reason for mental illness.⁽¹³⁾

In *social learning theory* terms, ECT can be characterized as having a decidedly punishing value.⁽¹⁴⁾ Dies (1968) believed that the mentally ill patient learns that ECT has been recommended by the psychiatrist because of some unacceptable behavior that need to be extinguished, the patient discovers that the behavior modification is conveyed dramatically and forcefully by electroshock. The constant feedback concerning implications of the patient's unacceptable behavior leads to an increased expectancy that demonstration of symptoms will result in punishment. Thus, in order to avoid punishment in this case (ECT), the maladaptive behavior is eventually diminished as the patient attempts to improve his behavior.⁽⁴⁰⁾

Other theories focused on the **physiological effects of seizures**. In ECT, seizures are triggered in normal neurons by application of pulses of electrical current through the scalp, under conditions that are carefully controlled to create a seizure of a particular duration over the entire brain. Although a seizure superficially seems as though it is an all-or-none event, some data indicate that not all generalized seizures involve all the neurons in deep brain structures (e.g., the basal ganglia and the thalamus). Recruitment of these deep neurons may be necessary for full therapeutic benefit. After the generalized seizure, the electroencephalogram (EEG) shows about 60 to 90 seconds of postictal suppression. This period is followed by the appearance of high-voltage delta and theta waves and a return of the EEG to pre seizure appearance in about 30 minutes. During the course of a series of ECT treatments, the interictal EEG is generally slower and of greater amplitude than usual, but the EEG returns to pretreatment appearance 1 month to 1 year after the end of the course of treatment.^(36, 38)

ECT itself acts as an **anticonvulsant** because its administration is associated with an increase in the seizure threshold as treatment progresses. Recent data suggest that for 1 to 2 months following a session of ECT, EEGs record a large increase in slow-wave activity

located over the prefrontal cortex in patients who responded well to the ECT. These data are of unclear significance, since the specific EEG correlate disappeared 2 months after ECT, whereas the clinical benefit persisted.⁽⁴¹⁾

One research approach to the mechanism of action for ECT has been done to study the **neurophysiological** effects of treatment. Positron Emission Tomography (PET) studies of both cerebral blood flow and glucose use have shown that cerebral blood flow, use of glucose and oxygen, and permeability of the blood-brain barrier, all increase during seizures. After the seizure, blood flow and glucose metabolism are decreased, perhaps most markedly in the frontal lobes. Some researches indicated that the degree of decrease in cerebral metabolism is correlated with the therapeutic response.^(42, 43)

Neurochemical research into the mechanisms of action of ECT has focused on the changes in neurotransmitter receptors and, recently, changes in second-messenger systems. Virtually every neurotransmitter system is affected by ECT. But a series of ECT sessions result in down-regulation of postsynaptic *B*-adrenergic receptors- the same receptor change observed with virtually all antidepressant treatments. The effects of ECT on serotonergic neurons remain controversial. Various research studies have reported an increase in postsynaptic serotonin receptors, no change in serotonin receptors, and a change in the presynaptic regulation of serotonin release. ECT has also been reported to effect changes in the muscarinic, cholinergic and dopaminergic neuronal systems. In second-messenger systems, ECT has been reported to affect the coupling of G-proteins to receptors, the activity of adenylyl cyclase and phospholipase C, and the regulation of calcium entry into neurons.^(44, 45)

The **neuroendocrine** system is the most likely agent of change brought about by ECT. Neuroendocrine dysregulation is prominent in patients with the mental disorders for which ECT is effective. Thyroid, adrenal, sex gland, and hypothalamic dysfunction are common in patients with psychiatric disorders. Indeed, every aspect of body physiology and mental activity is affected by these glands, as seen in the action of the adrenal glands in depressive mood disorders. In the severely depressed patient, the adrenal glands produce too much cortisol, which in turn, disrupt the normal diurnal rhythms of other glandular discharges, and the glands do not respond to the usual feedback mechanisms. The most prominent features of depression—failure to eat, loss of weight, inability to sleep, loss of interest in sex, inability to concentrate thoughts, and difficulties in memory—are distortions in functions regulated by the adrenal glands acting interdependently with the pituitary and hypothalamic cells, in a self-adjusting feedback. Each seizure stimulates the hypothalamus to discharge its hormones, which cause the pituitary gland to discharge its products, which then affect the level of cortisol. The first effects of this cascade of events are transitory, but repeated seizures restore the normal interactions of the hypothalamic–pituitary–adrenal axis hormones, so feeding and sleep become normal; motor activity, mood, memory, and thought follow suit.^(36, 46)

Patients who undergo ECT:

In contrast to its origins as a treatment of schizophrenia, ECT today is generally utilized more frequently in patients with depression, especially the psychotic type and in the elderly depressed patients. Mania and schizophrenia account for most of the remainder of convulsive therapy use. The indications have been most clearly spelled out by the

Review of Literature

American Psychiatric Association on ECT (1990, 2001), which identified “primary” and “secondary” use of convulsive therapy. Primary indications are those for which ECT may appropriately be used as a first-line treatment. These include situations where the patient’s medical or psychiatric condition requires rapid clinical response, where the risk of alternative treatments is excessive, or where, based on past history, response to ECT or nonresponse to medications is anticipated. If these conditions are not met, medication or other alternative treatment is recommended first, and ECT is indicated secondly.⁽⁴⁷⁾

Patients with Depression:

Major depressive disorder is the leading cause of disability in the U.S.A.⁽⁴⁸⁾ The World Health Organization estimates that, at current rates, depression will be the second most common cause of disability worldwide by 2020.⁽⁴⁹⁾ Severe depression can impair the quality of life and lead to death by suicide; the lifetime risk of suicide among patients with affective disorders is 6 to 15%.⁽⁵⁰⁾ ECT appears higher in the treatment hierarchy for the more severe presenting depression, usually defined by the presence of neurovegetative signs, psychosis, or suicidality.⁽⁵¹⁾

The literature describes an overall response rate to ECT of 75% to 85% in depression. Efforts to delineate subtypes of depression particularly responsive to ECT have yielded inconsistent results. For example, the Consortium for Research in ECT (CORE) in New Jersey reported a 75% remission rate among 217 patients who completed a short course of ECT during an acute episode of depression, with 65% of patients having remission by the fourth week of therapy.⁽⁵²⁾ While a systematic review of six trials involving 256 depressed patients by the United Kingdom ECT Review Group showed that the effect size for ECT was 91%, and a review of 18 trials involving 1144 patients showed that the effect size for ECT was 80%.⁽⁵³⁾

Suicide is common in persons with depressive mood disorders. In the CORE study of the 131 patients in the high expressed suicidal intent group, the rating of 106 patients (80.9%) ultimately dropped to 0. This occurred in 15.3% after one ECT session; in 38.2% after three ECT sessions (1 week); in 61.1% after six ECT sessions (2 weeks); and in 76.3% after nine ECT sessions (3 weeks).⁽⁵⁴⁾

In the literature on psychotic depression, the efficacy of antidepressants alone is estimated at 30%, antipsychotics alone at 50%, and the combination of the two agents at 70%. The response to ECT is sufficiently greater than that of medications.⁽⁵⁵⁾ In this respect, ECT is strongly considered and offered at the earliest possible opportunity, as a first line, nonpharmacological option in depressed pregnant and breastfeeding women. In fact, the American psychiatric association has recommended ECT as a safe and effective treatment during all 3 trimesters of pregnancy, because all the psychotropic medications are excreted in breast milk leading to neurobehavioral teratogenesis in the infants exposed to these medications.^(51, 56)

Patients with Bipolar Disorder:

ECT is an extremely effective and rapidly acting treatment for both acute mania and bipolar depression. Bipolar depression responds as well as unipolar depression to ECT, in both adult and geriatric patients. However, it is infrequently used for mania, because of the availability of other pharmacological strategies. Nonetheless, ECT has been repeatedly

endorsed as an accepted second- or third-line of treatment for acute manic episodes, particularly in cases of medication resistance. There is little information on which manic patients benefit most from ECT or on optimal ECT treatment in mania.^(57, 58) A study done in Georgia found that, ECT is associated with remission or marked clinical improvement in 80% of manic patients and that it is an effective treatment for patients whose manic episodes have responded poorly to pharmacotherapy.⁽⁵⁹⁾

Patients with Schizophrenia:

Among the changes undergone by convulsive therapy over its 60 year history, few are as striking as those associated with its use in chronic psychotic illness, i.e. schizophrenia. ECT has evolved from a treatment of first choice to often a treatment of last resort for DSM-IV schizophrenia. However, the efficacy of ECT for depressive symptoms associated with psychotic illness is reflected in recent data showing the use of convulsive therapy in almost 12% of patients with recurrent major depression comorbid with schizophrenia.^(60, 61)

It has been consistently found that the schizophrenic patients most likely to respond to ECT are those with good prognosis signs: mood disturbances, short duration of illness, predominance of positive rather than negative symptoms, and overexcitement.⁽⁶²⁾

Maintenance electroconvulsive therapy is an effective treatment for some drug-resistant schizophrenic patients. When added to antipsychotic medications, ECT for treatment of refractory schizophrenia has had favorable results.⁽⁶³⁾ This is supported by the results of the study done in -Australia 2007- which showed that with ECT, there was a tendency for less relapses and more likely discharge from hospital. Furthermore, when comparing ECT with antipsychotics, results showed that the antipsychotics have better effect than ECT, but when combined ECT with antipsychotic, the outcome was better than using the antipsychotics alone.⁽⁶⁴⁾

The physical seriousness of catatonic schizophrenia – which can present as psychomotor disturbances leading to extreme behavior such as hyperkinesia, stupor, catalepsy, negativism and anomalies of voluntary movement, which in turn are associated with dehydration, malnutrition, hyperpyrexia and outbursts of violence – merits urgent physical treatment. ECT has been considered the treatment of choice for catatonic schizophrenia.^(65, 66) A study done in 1995 on a total of 178 catatonic patients concluded that ECT was efficacious (85%) and was more likely to provide a positive outcome in cases of malignant catatonia, while antipsychotics demonstrated poor efficacy.⁽⁶⁷⁾

Elderly Patients:

Because ECT is well established as a safe and effective treatment for several psychiatric disorders, and that responsiveness to ECT does not abate with age, the use of ECT in the treatment of psychiatric disorders in the elderly persons has increased in recent decades. Much of the literature on the use of ECT in the elderly persons has focused on the treatment of mood disorders, whereas less research has been devoted to its use in the treatment of other psychiatric conditions. A review of literature indicates the use of ECT in elderly patients with some common neuropsychiatric disorders including catatonia, bipolar mania, schizophrenia, dementia with behavioral disturbance, and Parkinson's disease.^(68, 69)