The Story of ECT: Behind the Scenes of a Controversial yet Effective Treatment

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Electroconvulsive therapy (ECT) has been around since the 1930’s, yet it is still associated with passionate controversy. A large contributing factor to the current perception of ECT include the negative and grossly inaccurate portrayals in various forms of media. Through a literature review, the mechanisms, safety, efficacy, and side effects of the therapy are presented in a graphic narrative. Using both words and art to present a more accurate and holistic depiction of ECT, it was decided to use this visual medium so that the information could be accessed by a wide range of readers and counter incorrect depictions. In particular, this narrative could be read by individuals who are interested in learning more about ECT or are considering the treatment, allowing this comic to be a tool to help others make informed decisions. The findings from the review suggest that while the mechanism of action has still yet to be elucidated for ECT, it is an effective treatment in certain severe psychiatric illnesses. Specifically, it can improve symptoms and the quality of life of patients, especially for those who may be resistant to pharmacotherapy.
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- SHORTER & HEALY, 2007

Electroconvulsive therapy (ECT) has been a hot topic in the field of psychiatry. ECT depictions in media often illustrate a frightening, inappropriately applied procedure.

In the early days of ECT, there were many horror stories of its usage. In 1940, when psychiatrists were first exploring the potential of ECT, patients were subjected to shock treatments, with questionable outcomes. ECT became synonymous with "shock therapy." Although measures were developed to protect patients during later procedures, negative images of ECT have persisted in the public's mind.

Consequently, the lack of accurate information and initial misuse of ECT in its very early days of implementation sparked a resistance movement as part of the anti-psychiatry movement in the 1960s – 1970s (Finger, 2009). In conjunction with negative and incorrect portrayals of ECT in the media, this has led to apprehension from the general public regarding this procedure.

But what does ECT really look like? And more importantly, what does ECT look like today?

Real-life application of ECT is vastly different than the media portrayals. Performed by trained healthcare professionals, electrodes are attached to the patient’s head, which send small, controlled electrical currents to stimulate the brain.

In doing so, while the patient is under general anesthesia, the process induces a "therapeutic" effect that has been shown to be effective against psychiatric disorders. However, the precise mechanisms remain unclear (Singh and Ear, 2017).
Zhu et al.: The Story of ECT

Art. 13, page 3 of 10

The proposed mechanism of how ECT works is still a matter of debate. While early research suggested that ECT might be affecting neurotransmitter levels, more recent studies have pointed to changes in cerebral blood flow and increased neurogenesis as potential mechanisms. The role of these factors in the therapeutic effects of ECT is still under investigation.

The mechanism of ECT involves the generation of electrical current, which is typically delivered through a series of electrodes placed on the patient’s head. This current causes a brief seizure, which is thought to impact the brain in a way that can lead to improvement in mental health conditions.

In recent years, there has been growing interest in understanding the specific effects of ECT on the brain. Research has shown that ECT can lead to changes in gene expression and neuroplasticity, which may be responsible for the therapeutic effects observed in patients.

Through a review of the current literature, it appears that ECT has the potential to be an effective and safe treatment for patients with severe mental health conditions. Further research is needed to fully understand the mechanisms underlying the therapeutic effects of ECT and to identify the most effective methods for administering this treatment.

**MECHANISM**
SAFETY

ECT is performed by a team of trained healthcare professionals, including psychiatrists, nurses, and anesthesiologists. These members of the healthcare team are all involved in providing the safe application of the procedure.

During the application of the procedure, a small current is used to stimulate the brain, and a small twitch of the foot is usually the only observable feature of the entire procedure. The patient is continuously monitored throughout the entire procedure. Oxygen is provided to the patient, and, in the event of a seizure, the patient’s heart rate and blood pressure are consistently evaluated.

SECRET

The mortality rate is believed to be less than 1 out of 10,000 treatments, which is comparable to the mortality rate of general anesthesia (Ogawa et al., 2013). As well, complications typically arise in 1 in 200 patients, and these complications can be defined as occurrences of a transient rise in blood pressure or heart rates outside the range of normal for a brief period of time (Ogawa et al., 2009).

CONSENT

Often in the media, patients are seen to resist ECT, implying that patients do not have a say as to whether they undergo the procedure. These scenes diminish the importance of consent in making any healthcare decisions. ECT, or otherwise (Cinare, 2016).

Providing informed consent includes ensuring that the patient or SDM understands the risks and benefits of ECT and alternative treatment(s) as well as has time to ask any questions about their condition and management. Providing informed consent is an ongoing process that occurs throughout the sessions and may be withdrawn at any time. Furthermore, the patient can choose to forego ECT even as they walk into the treatment room (Cinare, Ross and Chan, 2016).

In reality, healthcare professionals follow specific guidelines to obtain patient consent prior to the initiation of ECT (Cinare, Ross and Chan, 2015). If a patient has been appropriately evaluated to be incapable of making their own decisions regarding their own health, a substitute decision maker (SDM) may choose for the patient to undergo ECT.

In the past, patients against ECT, experienced injuries, to teeth, and muscle damage after ECT was common, often resembling injuries seen as a result of serious trauma (Kaye and Haddad, 2007). Today, due to the use of proper anesthetic techniques, ECT is much safer and well-tolerated. For instance, muscle relaxants are provided to the patient prior to the procedure to prevent self-injury as a result of the induced “convulsion”.

Furthermore, nowadays, patients are always discharged within the same day as the ECT procedure.

Furthermore, something that is not often addressed in the media, but is an important topic of consideration in any healthcare intervention, is the idea of patient consent.
ECT is not used to treat every condition. In fact, it is indicated and has shown to be very effective in certain clinical situations. The procedure is indicated for treatment-resistant depression and major depressive disorder with features such as pyromaniac, catalepsy, insomnia, and suicidal ideation (Fink, 2000).

An objective measure known as the Hamilton Depression Rating Scale is often used to assess improvements in patients’ baseline for depression. This scale includes questions about patients’ symptoms such as sleep, appetite, energy, and suicidality. A systematic review found that patients who have undergone ECT see more significant improvements in these symptoms than those in placebo or medication groups (UK ECT Review Group, 2003).

The patient response rate to ECT is also fact, demonstrating the procedure’s usefulness for severe depression or with active suicidal ideation. One study found that about half of the patients responded to the treatment after 3 sessions (1-2 ECT treatments per week) and 60% remitted after a full course of ECT in 8 sessions (1-3 weeks) (Rosan et al., 2006).

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One of the concerns surrounding ECT is that the effects wear off over time. However, after the initial course of treatment, ongoing maintenance may often still be needed to maintain remission. Thus, maintenance ECT can be an option to pursue (Ciccarelli et al., 2003). The decision to continue with maintenance ECT should be based on factors such as remission and patient preferences, medications and psychological factors such as cognitive behavioral therapy are also offered.

In contrast, the general clinical practice when prescribing pharmacotherapy is to wait many days to evaluate any potentially leading to extended courses of treatment for patients that could have medication-resistant depression (Okawa, 2003).

Common side effects after ECT can include headache, muscle stiffness, nausea, and confusion. These symptoms are often caused by the anesthetic or muscle relaxants provided during the treatment. However, these side effects are temporary and do not last long for the majority of patients (CAMH: Electroconvulsive therapy (ECT), 2002).

However one of the major failings surrounding ECT is that the treatment may lead to memory loss. In fact, media depictions of ECT often show the therapy being used to intentionally cause memory loss in patients (Suworit, 2016).
It's important to note that memory loss experienced after ECT is variable among patients, especially in published literature. In one study, it was found that a minority (26%) of patients would report experiencing subjective memory worsening (Chen et al., 2017). Patient-reported memory loss may last for a few weeks during the course of ECT, but typically resolves with time (Oner et al., 2016).

Therefore, it is often suggested that during the course of ECT, any major decisions that the patient needs to make are postponed, and arrangements are made for someone to keep the patient to and from the ECT facility due to the initial experienced confusion (CAInE: Electroconvulsive therapy (ECT), 2016).

Moving into the long-term effects of ECT, one may wonder what is life like for a patient after undergoing ECT. In a study, patients were assessed both before and after ECT. It was found that there was a slight improvement in the quality of life (QoL) for most patients. Based on these findings, it appears that ECT can positively impact patients' health-related quality of life (HRQoL), which includes parameters such as physical functioning, bodily pain, social functioning, and mental health (Garavelli et al., 2018). Therefore, ECT can play an important role in treating and improving patients' functioning.

DBS (Deep Brain Stimulation) is currently a procedure that has shown a lot of promise in treating disorders such as Parkinson’s as well as neuropsychiatric conditions. A “brain pacemaker” is inserted into the brain to stimulate a target in the brain (Majnark et al., 2007).

In general, ECT has undergone unfair scrutiny by the public eye due to its persistent, inaccurate portrayals in the media. Conducted by trained, interprofessional teams, it has great potential in improving patients’ acute symptoms and long-term quality of life.

Although there is still much to learn about its mechanisms of action, these questions inspire further investigations into how ECT is able to transform patients’ lives for the better.
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Competing Interests
The authors have no competing interests to declare.

Author’s Note
Annie Zhu drew all the images in the comic. All authors contributed to writing the comic.

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References


