MAUDSLEY DEBATE

Should we stop using electroconvulsive therapy?

Electroconvulsive therapy has no long term benefits compared with placebo and often causes brain damage, say John Read and Sue Cunliffe. But Sameer Jauhar and Declan M McLoughlin argue that evidence shows ECT is effective and safe in depression and that adverse side effects can be managed.

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Yes—John Read and Sue Cunliffe

Electroconvulsive therapy (ECT) was first administered in 1938. The first study, in 1951, showed that people who had had ECT fared worse than those who hadn’t.¹

Today, positive, evidence based, risk-benefit analyses are required for treatments. However, systematic² ³ and narrative⁴ reviews (by JR and colleagues) identify only 10 studies comparing ECT with placebo for depression (placebo includes general anaesthetic but no shock). Half found no difference.

The other five found a temporary lift in mood, but only during the treatment period, and in about only a third of patients. In the famous Northwick Park study⁵ this minimal improvement was perceived only by psychiatrists, not by nurses or patients.

The many reviews and meta-analyses claiming that ECT works⁶ ⁷ do so purely on the basis of these temporary gains, in a minority of patients, found in just half the studies. Furthermore, none of them identify any placebo controlled studies showing that ECT reduces depression beyond treatment or prevents suicide.² ³

Despite this lack of evidence psychiatry remains so adamant ECT works⁸ ⁹ that no studies to establish efficacy have been conducted since 1985.² ³ Instead, many studies investigate which kind of ECT causes least damage.² ³

Memory loss and brain damage

Brain cells receive electrical signals of a fraction of one volt. Subjecting them to 150 V inevitably causes damage, similar to traumatic brain injury.⁶ Early post-mortem examinations led to the article “Brain damaging therapeutics,” in which the man who introduced ECT to the US wrote, “The greater the damage the more likely the remission.”¹⁰ By 1974, the head of neuropsychology at Stanford wrote, “I’d rather have a small lobotomy than a series of ECT … I know what the brain looks like after a series of shocks.”¹⁰

More recent assessments of the incidence of long lasting or permanent memory damage range from one in eight¹¹ to just over half.¹² A review of studies asking patients themselves found “persistent or permanent memory loss” in 29% to 55%.¹³ ECT advocates claim this memory loss is caused by depression not ECT,¹³ but many studies show it is caused by the ECT not the depression.² ³ ¹¹ ¹⁴

Numerous studies have found mortality rates between 10 and 100 times greater than the oft repeated claim of one or two per 100 000 treatments, predominantly from cardiovascular failure.² ³

Incapacitated by ECT

One of us (SC) was a paediatrician before having ECT, and told her story at last year’s Maudsley debate on ECT¹⁵: “Like thousands of other ECT victims, I consented after being told ECT was safe; yet I suffered catastrophic brain injury. My hands shook and my speech was slurred. It affected my memory and executive function, including my ability to use money, recognise faces, read, and other basic tasks. Hence my independence and capacity to work have gone forever. Despite a neuropsychologist’s diagnosis of ECT induced brain damage the psychiatrists rejected my complaint, thereby denying me adequate support and preventing closure.

“Having spoken so openly, I was shocked that my brain damage, and that of thousands of others, was still rejected by some psychiatrists at the debate.”

Fortunately, use of ECT in the UK continues to fall.¹⁶ Some NHS trusts already use it 12 times less than the highest users.¹⁶
In England, however, about 40% of ECT still occurs without consent; it is given twice as often to women, and most recipients are over 60, the two groups who experience the greatest memory loss. Monitoring is assigned to the Royal College of Psychiatrists, hardly a neutral body.

The demise of ECT will hopefully be accelerated by the recent settling of a US class action lawsuit against Somatics, an ECT device manufacturer, after a federal court ruled that the case could proceed to trial because it was open to a reasonable jury to find that Somatics had failed to warn the plaintiffs of the risk of brain damage from ECT. Somatics immediately issued a regulatory update to add that some patients may experience “permanent brain damage.”

No—Sameer Jauhar and Declan M McLoughlin

ECT is still used 80 years on because evidence shows it is effective for treatment resistant depression, which is often severe and sometimes life threatening, as well as resistant mania and catatonia. ECT is approved for these indications by the National Institute for Health and Care Excellence (NICE) and in international guidelines. Additionally, ECT is cost effective and improves quality of life. In England 0.43 per 10 000 population are treated annually with ECT, and worldwide about a million people have ECT each year. The scientific debate about ECT has been over for decades. Preclinical and translational research has focused on molecular and cellular neuroplastic mechanisms of action for ECT, but these included studies of questionable validity on an ad hoc basis—for example, including underpowered, flawed studies that the UK ECT Review Group excluded.

ECT is associated with deficits in short term memory and executive function compared with performance before ECT. However, these resolve within weeks, and most people have significantly improved function compared with that before ECT. The effect of ECT on retrospective autobiographical memory is less clear and is complicated by the deleterious effects of depression itself. NICE recommends monitoring cognitive function before, during, and after ECT and adjusting or stopping treatment depending on the balance of risks and benefits.

Recent clinical trials have focused on modifying ECT to minimise side effects. Brief pulse (1.0 ms), high dose unilateral ECT is as effective as the original bilateral placement of electrodes, with fewer cognitive side effects, including on autobiographical memory. These effects are further reduced by using ultrabrief pulse (0.3 ms) ECT, though it has slightly lower remission rates.

Preclinical and translational research has focused on molecular and cellular neuroplastic mechanisms of action for ECT, including structural imaging studies showing that ECT increases hippocampal volume.

ECT is a safe procedure that entails brief anaesthesia and muscle relaxant and uses a small amount of energy to elicit a controlled seizure lasting about 30 seconds. Mortality is low (2.1/100 000 treatments). Despite sensationalist media reports, no robust evidence shows ECT causes brain damage at cellular or macroscopic level. Large registry studies, for example, show that ECT is not associated with risk of dementia or stroke.

As with all medical treatments, not everybody benefits: there is individual variation and people who respond outside the 95% confidence intervals of meta-analyses. However, changing electrode placement, stimulus dose, pulse width, and treatment frequency may minimise cognitive side effects, and older age, baseline depression severity, and psychosis are predictors of good therapeutic response to ECT.

Relapse rates after ECT are similar to those in resistant depression treated with antidepressants (3% after six months) and are a function of the illness, reinforcing need to continue with antidepressants, ECT, or both after a successful acute course of ECT. Emerging evidence suggests maintenance ECT to prevent relapse.

Ideological and emotive objections

Because ECT is an evidence based treatment, the question we should ask is: “Why are there ideological, and at times highly emotive, objections to ECT?” Certainly, we all fear having a seizure, and media representations have been mostly negative and poorly informed.

ECT may act as a metaphor for concerns around coercion, repression, and so on in psychiatry. Clint Eastwood’s 2008 film Changeling exemplifies this. Marketed as being based on “a true story” from 1928, the heroine is rescued from being punished with ECT; however, ECT was not invented until 10 years later.

Cavalier characterisations perpetuate stigma around ECT and may contribute to denying some of our sickest patients one of the most effective treatments.

The authors spoke at the 57th Maudsley debate on 19 September 2018 in London, with the motion “This house believes that ECT has no place in modern medicine.” Competing interests: We have read and understood BMJ policy on declaration of interests and declare that DMM has received a speaker’s honorarium from the ECT device manufacturer Mecta and an honorarium from Janssen for participating in an esketamine advisory board meeting.

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1 Karagulla S. Evaluation of electric convulsion therapy as compared with conservative methods of treatment in depressive states. J Ment Sci 1950;96:1060-91. 10.1136/bmj.326.7403.1363 12816822
2 Read J, Bentall R. The effectiveness of electroconvulsive therapy: a literature review. Epidemiol Psichiar Socio 2010;19:333-47. 10.1017/S1121189X00006871 21202356


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