

Evidenced Based Practice: Critically Appraised Topic (CAT)

Depression and Electroconvulsive Therapy

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Clinical Scenario

A patient presents with severe depression. Unable to sleep, has poor appetite, and has lost 15 pounds in one month. Patient is having paranoid delusions, and is not bathing and/or caring for himself. Patient begins to cry and is asking to die. Patient is currently on two antidepressants, with the addition of the second medication having no effect on the patient.

PICO Question

For patients diagnosed with a Depressive Disorder, does electroconvulsive therapy (ECT) prove to be an efficacious and safe choice for improving depression compared to those who choose pharmacological therapy alone?

Articles

Bailine, S., Fink, M., Knapp, R., Petrides, G., Husain, M.M, Rasmussen, K.,...Kellner, C.H.(2010). Electroconvulsive Therapy is Equally Effective in Unipolar and Bipolar Depression. *Acta Psychiatrica Scandinavica*, 121, 431-436. doi: 10.1111/j.1600-0447.2009.01493.x

Sackeim, H.A., Dillingham, E.M., Prudic, J., Cooper, T., McCall, W.V, Harold, A., ... Haskett, R.F.(2009). Effect of Concomitant Pharmacotherapy on Electroconvulsive Therapy Outcomes: Short-term Efficacy and Adverse Effects. *Arch Gen Psychiatry*, 66 (7), 729-737. doi: 10.1001/archgenpsychiatry.2009.75

Summary and Appraisal of Key Evidence

Study 1 In a study by Bailine et al. (2010), effectiveness of electroconvulsive therapy in unipolar and bipolar depression was done. The trial lasted from 2002-2006 and included 220 patients, 170 unipolar and 50 bipolar depression, that were used in the multi-site collaborative, double-masked, randomized controlled trial. Evidence was classified as level I, grade A evidence. The study was funded by the National Institute of Mental Health.

The study participants were randomly assigned using a permuted block randomization scheme in order to receive one of the three electrode placements: Bifrontal, Bitemporal, or right upper lobe. Results, measured by the 24 question Hamilton Rating Scale for Depression showed that both groups had >60% remission within 3 weeks. Both groups of patients received six ECT in the acute phase, which yielded the same results for both groups.

Study 2 Sackeim et al. (2009), conducted a prospective, randomized, triple masked, placebo controlled study that lasted for four years. It was conducted to assess if medications such as nortriptyline or venlafaxine during the course of ECT treatments enhances efficacy without adverse effects while reducing relapse. It also measured the effectiveness of high-dose, right-sided ECT versus moderate-dosage bilateral ECT. The study, providing a level 1, grade A level of evidence, included 319 patients presenting for ECT with a major depressive episode. All participants had to meet the *DSM-IV* criteria for a major depressive episode; they scored greater than a 21 on the Hamilton Rating Scale for depression, and were excluded if they had a history of schizophrenia, schizoaffective disorder, non-mood disorder psychosis, neurological illness, and alcohol or drug abuse within 6 months, ECT within 6 months, or severe medical illness. Patients were also excluded if they had a known allergy or contraindication to nortriptyline or venlafaxine.

Patients stopped psychotropic medications prior to electroconvulsive therapy. Electroconvulsive therapy was given 3 times per week and was continued as long as clinical progress was observed and terminated after no further improvement for at least 2 treatments. Patients were randomized to receive nortriptyline, venlafaxine, or placebo starting the afternoon following the first ECT treatment. Each patient received 2 sets of pills, 1 corresponding to venlafaxine or placebo in the morning and the other to nortriptyline or placebo in the evening. Results showed that treatment with nortriptyline enhanced and also reduced the cognitive adverse effects of the ECT in comparison to the placebo. In patients that were given venlafaxine, there was a weaker degree of improvement and patients also had worsened cognitive effects. In regards to electrode placement, high dose right unilateral ECT wasn't different or was superior to bilateral ECT in efficacy. It also resulted in less severe amnesia. The study concluded that ECT efficacy is substantially increased by the addition of an antidepressant medication.

Results and Limitations

Results from both studies indicate that electroconvulsive therapy (ECT) is a safe and effective treatment for major depressive disorder. The first study had a great structure set up with a triple-masked study in regards to pharmacological assignment and double masked in regards to the ECT assignments. Both studies had trained personnel in helping with diagnostic criteria, ECT testing, and pharmacological aspects of the studies. Weaknesses of the studies were that they were both relatively small with around 300 participants. Because not much research has been done regarding ECT and depression, there are many opportunities for research and the advancement of treatment in patients with depression. Threats of these studies are the perceptions that society and families of patients have on ECT. Studies and study sizes may be limited due to the fact of the

portrayed image of ECT. While they have been proven to be fairly safe, short term memory impairment may be one of the drawbacks to gaining larger sample sizes.

Clinical Bottom Line

According to these two studies, electroconvulsive therapy (ECT) can be a safe and effective means of treatment for a patient presenting with severe depression that are not managed with medications. Efficacy and safety both appeared to make ECT a treatment option in patients with major depression.

Implications for Practice

In patients with a depressive disorder who do not respond to first line treatments of antidepressants and therapy, I would recommend ECT in the management of their symptoms. Since ECT is classified in depression treatment as third or fourth line treatment, it would be practical to try pharmacological treatment and therapy before proceeding with ECT treatments, but electroconvulsive therapy should be considered in medication resistant depression.

References

- Bailine, S., Fink, M., Knapp, R., Petrides, G., Husain, M.M, Rasmussen, K.,...Kellner, C.H.(2010). Electroconvulsive Therapy is Equally Effective in Unipolar and Bipolar Depression. *Acta Psychiatrica Scandinavica*, 121, 431-436. doi: 10.1111/j.1600-0447.2009.01493.x
- Sackeim, H.A., Dillingham, E.M., Prudic, J., Cooper, T., McCall, W.V, Harold, A., ... Haskett, R.F.(2009). Effect of Concomitant Pharmacotherapy on Electroconvulsive Therapy Outcomes: Short-term Efficacy and Adverse Effects. *Arch Gen Psychiatry*, 66 (7), 729-737. doi: 10.1001/archgenpsychiatry.2009.75