

Cognitive Effects of Electroconvulsive Therapy

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Among the most vexing predicaments for many clinicians is providing dispassionate guidance regarding electroconvulsive therapy (ECT) to a patient and family members of a severely impaired, suicidal, medication-resistant patient, who has benefited marginally from psychotherapy. Even if some of us have witnessed instances of benefit, thoughts of ECT evoke dramatic and disturbing images and intense aversion among a great many of our fellow professionals. The American Psychiatric Association (2001) regards it as a very effective option when other treatments fail. NIMH estimates that more than 3 million people have received ECT in the past decade. Critics contend that recognition of its iatrogenic impact has been minimized, leading to imprudent decisions. The principal complaint is that ECT results in substantial and permanent memory loss that extends back several years. Other counter that the use of general anesthesia and modified electrical waveforms produce only temporary memory loss. Most practitioners and researchers observe at least some anterograde amnesia, that is, difficulty retaining newly learned information, and some retrograde amnesia, that is, memory loss of events that occurred weeks to months prior to ECT. The particular ECT technique used makes a difference. Sine wave stimulation produces more impairment than brief pulse stimulation, as does bilateral more than right unilateral electrode placement, and as does higher relative to lower dosage.

It is distressing to know that surveys indicate that most ECT clinicians administer mainly or only bilateral stimulation, that about half do not adjust dosage to the patient's seizure threshold, and that some still use the sine wave technique (Prudic *et al.*, 2004). In January 2007, the journal **Neuropsychopharmacology** published the first, prospective, longitudinal, large scale, naturalistic research on patients diagnosed with major depression at seven treatment facilities in the New York City area. Multiple cognitive measures were used and at least one assessment was performed six months post-ECT. Harold Sackeim, the leading ECT researcher in the US, conducted the study with his colleagues.

The study findings raise many disturbing questions. Sine wave stimulation was confirmed to be associated with pronounced and persistent diminution of reaction time. Bilateral ECT did produce more severe and enduring retrograde amnesia than did the right unilateral procedure. Iatrogenic effects were also greater with older patients, as well as those with lower premorbid IQ, and in women. Notable, too, was the fact that the various treatment facilities differed significantly in cognitive outcomes immediately afterwards and at follow-up, even when patient characteristics were controlled. Differences in the technique of ECT accounted for *most but not all* of the facility variance.

It is unclear if these cognitive impairments, namely, memory disturbance and reduced reaction time, even of the less severe variety, are permanent, or if there are other adverse personality or functional effects. It is important, of course, to weigh these known and possibly unknown iatrogenesis associated with ECT, on the one hand, and the known deteriorative effects that chronic debilitating major depression has on psychological and physical health. Unfortunately, our not fully grasping the possible persistence of these deficits clouds consideration of this distressing dilemma.

Hopefully, this research will at a minimum foster better practice guidelines for ECT and provides some additional information to share with our patients and their families.

But there is more to the story. Sackheim has been criticized as minimizing, if not ridiculing, for many years the notion that ECT has long-term adverse effect. Linda Andre, head of the *Committee for Truth in Psychiatry*, a national organization of ECT patients, has been

concerned that since the 1980s, Sackheim has served as a consultant to Mecta Corporation, a ECT device manufacturer. Apparently, he did not disclose his financial ties while receiving government grants as required by law. (The journal *Neuropsychopharmacology* has had its difficulties, too, for not disclosing possible financial conflicts of its journal authors. The editor resigned over this problem.). Nevertheless, the fact that Sakheim, a strong supporter of ECT, found such serious problems could be interpreted as giving additional credibility to the failure of best empirically based practices being used in the clinical administration of ECT and to the adverse impact of ECT per se. ED

References

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