

ECT - memory loss

Editorial

The Cognitive Effects of ECT: Bridging the Gap Between Research and Clinical Practice

The two greatest drawbacks to ECT are the risk of early relapse and the effects on cognition. Both areas are the subject of intensive study, and much progress has been made in each. The study of cognition and ECT is fraught with several peculiar problems, among them that 1) memory is remarkably complex, 2) neuropsychologists have great difficulty agreeing on methods of assessment, and 3) there is much "hysteria" involved in discussions of ECT's effects on memory. As practitioners in the field, we can improve the situation by careful pre-treatment discussions with our patients, and by making an effort to develop a reasonable bedside cognitive assessment method.

My thoughts have been stimulated by reading *Aftershock* by "Ellen Wolfe" (a pseudonym) (1969). It is an excellent account of a patient's subjective experience of memory disruption after ECT. To me it seems factual and non-"hysterical." For example, she describes an event which occurred soon after completing her course of ECT:

There was no point to trying to read the [news]paper unless David [her husband] was around to fish me out of the muddles I fell into while reading. Example: I plodded through an article on Lyndon B. Johnson. It was the writer's opinion that he was sure to receive the Democratic Party's nomination at the coming convention. When I had finished reading the article, I said to David in the untroubled voice I use to ask any reasonable question: "I don't understand. Doesn't Kennedy want to be reelected?"

David was very good at handling such moments. He made his voice as matter-of-fact as his explanations. "Kennedy is dead. He was shot last November—in Dallas."

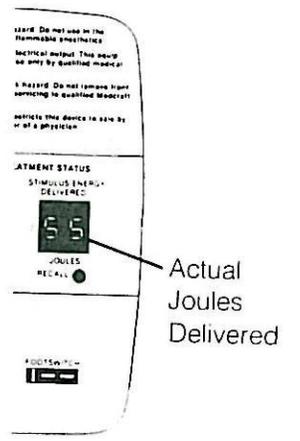
But of course. Everyone knows that. Another large fact I had forgotten. My reaction was always the same: a kind of slow, agonized mental blush. I could never believe that David was not as frightened as I was by the incidents. It was all very well to keep saying, 'Your memory will come back'—but would it? I wondered.

The experience "Mrs. Wolfe" describes is a very severe case—likely the result of a series of treatments with high-dose bilateral sine wave ECT. (Other factors contributing to her memory loss would include the severity of her manic psychosis and the attendant state-dependent learning, medications, etc.). Such extreme ECT effects would be very unlikely with modern ECT technique, but the patient's experience is, nonetheless, highly instructive.

"Mrs. Wolfe" claimed that she was ill prepared for the effects of ECT—no one told her what to expect. Perhaps it was such experiences that led the first APA task force on ECT (APA, 1978) to recommend explicit education about side-effects and the use of a formal, written consent. In the study, "Patients: Experiences of and Attitudes to Electroconvulsive Therapy," Freeman and Kendell (1986) note, "It is clear that patients wish to

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be told more about the treatment." Nowadays, we *do* tell patients what to expect and everyone is better for it. Preparing a patient (and his/her family) for the predictable, expectable, and largely stereotyped effects of ECT on memory and other domains of cognition is honest, necessary, and helpful. It leads to realistic expectations for the treatment, and can help the patient and family prepare for the immediate post-ECT period. Disappointment and fear are decreased and some practical steps towards restoration of memory (coaching, list-making, and "filling-in" by family and friends) can be planned.

While we know a great deal about the relative effects on cognition of electrode placement (Weiner, 1986), stimulus type (Weiner, 1986; Squire, 1986), stimulus dose (Sackeim et al., 1993), interval between treatments (Shapira et al., 1991; Lerer, et al., 1995), etc., we do not yet have the ability to predict which patients will have the most difficulty with effects on cognition. In all cases, we should be prepared to measure an individual's response during the treatment course. Although this can be approximated with current tools and good clinical care, we need a better, dedicated ECT cognition assessment battery.

Why is no such battery widely available? Clearly, we know much about ECT's effects on cognition. Some examples of the sophisticated knowledge are found in the section on neuropsychological effects of ECT in the 1986 New York Academy of Sciences monograph (Malitz and Sackeim, 1986), and Sackeim's review chapter in *Cognitive Disorder: Pathophysiology and Treatment* (1992). But ask any neuropsychologist about a reasonably comprehensive, yet clinically usable ECT cognition assessment battery, and the likely answer is that it doesn't exist. On the one hand, we use the ubiquitous Mini-Mental State Examination (MMSE) (Folstein, 1975), and on the other, a 3-hour Halstead-Reitan neuropsychological battery (Reitan and Wolfson, 1985). Clearly, the MMSE is inadequate (it is insensitive to ECT-induced memory changes—patients may score a perfect 30 and yet still have very significant deficits), and the full Halstead-Reitan is obviously undoable because of the time and expertise it requires to administer. We need a middle ground.

In order not to be overly simplistic, one must also acknowledge that the lack of such a battery is testimony to the difficulty of the problem: Memory is so complex and ECT's effects on it also so varied, that it is difficult to pick and choose the best tests to assess memory function in a clinically useful way. But surely it is not impossible, despite disagreements among neuropsychologists about which tests are preferable (preferences which may be based on idiosyncratic viewpoints), and despite a reluctance to bridge the gap between research and the clinic. Every new ECT research project that involves memory assessment has a complex, "time-is-no-object" battery designed for its specific needs. Some of our neuropsychological expertise should be harnessed and redirected to the clinic.

What is needed, in my view, is a battery that could be administered in approximately 20 minutes, given before, several times during, and shortly after, a course of ECT. It would enable the treating physician and the patient to objectively assess whether the effects of ECT on cognition were trivial, moderate, or severe. Reliable information of this type would often be helpful in clinical decision-making about various treatment parameters, including number and spacing of treatments, electrode placement, and stimulus dosing.

Memory is often equated with the very essence of a person's "being." As such, discussions about ECT's effects on memory deserve our most careful consideration. The

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subject can be dealt with in a way that eases, rather than heightens, patients' apprehensions. For the majority of patients, the decision to trade a few weeks of impaired memory for the return to health and functioning is a very straightforward one.

Charles H. Kellner, M.D.
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REFERENCES

- Folstein MF, Folstein SE, McHugh PR. Mini-Mental State: A practical method for grading the cognitive state of patients for the clinician. *J Psychiatric Research*, 1975;12:189-98.
- Frankel FH. Electroconvulsive Therapy. *Report of the Task Force on Electroconvulsive Therapy of the American Psychiatric Association*, Washington, DC: American Psychiatric Association, 1978.
- Freeman CPL, Kendell RE. Patients' Experiences of and Attitudes to Electroconvulsive Therapy. In: *Electroconvulsive Therapy Clinical and Basic Research Issues*, Malitz S, Sackeim HA (Eds). *Ann NY Acad Sci* 1986;462:341-52.
- Lerer B, Shapira B, Calev A, et al. Antidepressant and Cognitive Effects of Twice versus Three Times Weekly ECT. *Am J Psychiatry* 1995;152:564-70.
- Malitz S, Sackeim HA. *Electroconvulsive Therapy Clinical and Basic Research Issues*. *Ann NY Acad Sci* 462:March 14, 1986.
- Reitan RM, Wolfson D. *The Halstead-Reitan Neuropsychological Test Battery: Theory and Clinical Interpretation*. Tucson: Neuropsychology Press, 1985.
- Sackeim HA. The Cognitive Effects of Electroconvulsive Therapy. In: *Cognitive Disorder: Pathophysiology and Treatment*, Thal LJ, Moos WH, Gamzu ER (eds.). New York: Marcel Dekker, 1992:pp. 183-228.
- Sackeim HA, Prudic J, Devanand DP, et al. Effects of Stimulus Intensity and Electrode Placement on the Efficacy and Cognitive Effects of Electroconvulsive Therapy. *NEJM* 1993;328(12):839-46.
- Shapira B, Calev A, Lerer B. Optimal Use of Electroconvulsive Therapy: Choosing a Treatment Schedule. In: *The Psychiatric Clinics of North America, Electroconvulsive Therapy*, Kellner CH (Ed). W. B. Saunders Company 1991;14(4):935-46.
- Squire LR, Zouzounis JA. ECT and memory: brief pulse versus sine wave. *Am J Psychiatry*, 1986;143:596-601.
- Weiner RD, Rogers HJ, Davidson JR, Squire LR. Effects of Stimulus Parameters on Cognitive Side Effects. In: *Electroconvulsive Therapy Clinical and Basic Research Issues*, Malitz S, Sackeim HA (Eds). *Ann NY Acad Sci* 1986;462:315-25.
- Wolfe E. *Aftershock*. G. P. Putnam's Sons, New York, 1969.