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Contents

Neuropathology and Cognitive Dysfunction From ECT

Peter R. Breggin, M.D.

ECT always produces some degree of immediate brain damage and mental dysfunction, and frequently the patient never fully recovers. Permanent brain damage from ECT is demonstrated through clinical evaluations, psychological tests, EEG studies, CAT scans, human autopsy studies, and research on the effect of electrical current on the brain as well as through a variety of animal studies.

In every routine course of ECT, its devastating impact is displayed in the production of an organic brain syndrome, with severe symptoms of trauma to the brain.[1-3] In its most mild form, the organic brain syndrome takes the form of an amnestic syndrome with loss of both recent and more remote memories. Typically, "apathy, lack of initiative, and emotional blandness are common," and the emotions are "shallow."[4] More commonly, the organic brain syndrome becomes much more severe and takes the form of delirium[4] with global disruption of all mental function, including intellect, judgment, emotional stability, memory, and orientation to time, place, and person.[1] Severe delirium is not uncommon in routine ECT.

The brain-damaged patient tends to confabulate--to deny any mental impairment, even when it is grossly apparent to the observer.[4] This denial of impairment by many ECT patients in the face of obvious mental dysfunction unhappily lends credence to false claims that the treatment is harmless.

Because ECT always produces an organic brain syndrome, the question is not "Does ECT cause brain damage and dysfunction?" **ECT always produces brain damage and dysfunction.** The proper question is "How complete is recovery from this trauma?" To assume it is routinely complete after electrically induced delirium defies common sense and general medical knowledge. Among body organs, the brain is especially ill-equipped to recover from damage.

During the phase of the acute organic brain syndrome, the impaired condition of the brain is routinely reflected in a disturbed EEG pattern similar to severe chronic epilepsy, toxic states, and other serious brain diseases.[5,6]

Often this brain wave impairment becomes long lasting and even permanent.[6,7] Shrinkage of the brain may be apparent on CAT scans.[3,8,9]

Neuropathologically, the permanent damage can be visualized in human autopsies after modified ECT.[10-13] Reports show diffuse small hemorrhages throughout the brain, glial proliferation (scarring), and cell death. Extremely careful animal studies have shown similar findings.[3,8,14-17]

The worst damage results from the passage of current through the brain and has been directly visualized in animals receiving modified ECT and demonstrated by angiography. Even a very weak current of electricity passing down the blood vessels severely constricts them, cutting off the supply of nutrients and oxygen to the surrounding brain cells, eventually causing vessel wall deterioration, hemorrhage, and cell death. Advocates of ECT, such as Meldrum (1985),[18] must claim that ECT-induced convulsions are theoretically less harmful than spontaneous seizures in epilepsy; these conclusions overlook the damaging effects of the electrical current. ECT combines the brain damage caused by epilepsy with the brain damage caused by electrical trauma.

Cognitively, ECT treatment always produces some degree of permanent memory loss for events surrounding the treatment and frequently produces permanent memory loss reaching back months and years into the past.[3,19] Many cases involve losses that prohibit a return to normal activities in the home or at work. Indeed, there are repeated warnings in the literature against giving ECT to individuals who earn their living through mentally taxing work.[20] ECT can also produce ongoing problems with learning and memorizing new material, with the tragic result that the patient feels permanently defective and disabled. I have described several such desperate cases,[3,8] and many similar reports continue to flow into the Center for the Study of Psychiatry each week.

Tests that examine the most relevant function--the patient's actual memory for past events--always show serious and lasting losses following ECT.[19,21-24] Similarly, when patients are questioned years after ECT, more than 50 percent typically respond with reports of chronic memory difficulties, which they attribute to ECT (Squire, 1982, reports 58 percent; Freeman and Kendall, 1980, report 64 percent).[25,26]

Patient self-reports of permanent loss are so frequent that promoters of ECT have tried to argue that the patients have "subjective" memory losses without real or objective losses.[27] But as we have seen, patients with memory defects from brain damage of any kind tend to confabulate and deny--that is, to minimize rather than to exaggerate their defects.[4]

Squire's personally originated tests using recall for TV shows failed to show large memory losses.[28,29] But these tests are wholly of his own invention and have never been proved useful in detecting brain

damage. In recent years, Squire has placed more emphasis on patient self-reports and on tests that measure the actual loss of personal memories,[24,25] both of which indicate permanent memory loss following ECT.

The modern defense of electroshock often rests on the assertion that "recent" modifications of the treatment have ameliorated its damaging effects. But the most important modification of ECT--the use of anesthetics, muscle paralyzing agents, and artificial respiration with oxygen--is not new at all. As early as 1957 there were multiple reports in the literature of brain death from modified ECT.[10] I myself administered modified ECT more than 20 years ago! The bad reputation that ECT has among many professionals and many patients, and much of the scientific data indicting ECT as a dangerous therapy, stems from more than 30 years of experience with modified ECT.

Modified ECT of necessity tends to be more damaging than the older methods. The anesthesia used in modified ECT is a sedative that suppresses the ability of the brain to have a seizure. Therefore, higher doses of offending electricity must be used in modified ECT to force a seizure from the patient's brain.[3]

Nondominant or unilateral ECT offers us no hope for a safer ECT. The fact that nondominant ECT does not so heavily affect the verbal centers on the left side of the brain makes it more difficult to measure its damaging effects; but this is merely because most of our tests are aimed at verbal memory loss. The nondominant side of the brain deals more with visual memory, musical memory, intuition, integration of knowledge, and creativity. Tests of visual memory find damage following nondominant ECT.[24]

To assume that any innovations have ameliorated the hazards of ECT remains irresponsible speculation until backed by multiple animal autopsy studies. It is in keeping with traditional medical ethics to ask the profession to ban ECT until animal studies have been conducted to test the unproven and unlikely hypothesis that the newer methods of ECT are relatively harmless.

ECT can never be made harmless. First, enough damage must be done to elicit the convulsion. Second, the damage itself produces the emotional changes--apathy and indifference, and sometimes euphoria--that are labeled an "improvement." Therefore, a relatively inoffensive ECT would be a relatively ineffective ECT.[3,8,30-32] This is consistent with Weiner et al.'s observation that the most "benign" methods of ECT may be "relatively ineffective from a therapeutic standpoint."[33] Thus, the innovations remain unpopular.

The idea that electroshock works by damaging the brain is not unprecedented in psychiatry. Before psychiatry became public-image conscious,

it was commonly claimed that ECT works by damaging the brain and mind and even by killing brain cells.[34-36]

Electroshock victims can best describe the damaging effects of the treatment, and two cases will be described in the patients' own words to illustrate their anguished outcomes.

Informed consent is at the heart of the matter; the potential patient has a right to know about the controversial and dangerous nature of ECT. Kaplan and Sadock, authors of the widely read textbook of psychiatry, recently observed, "ECT remains one of the most controversial methods of treatment in psychiatry."[37] The patient has a right to be informed of this!

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