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## ECT: Is It Unsafe and Ineffective?

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The voluminous but seldom read scientific literature on electroconvulsive therapy warrants the conclusion that the procedure is one of considerable risk and unproven effectiveness. For reasons that are clear in the literature, scientifically adequate studies of efficacy are unlikely in the foreseeable future. Inadequate reports, such as those that comprise the bulk of the literature, may serve in the future as they have in the past to rationalize ECT's expanded use to the detriment of the public.

Considerations of safety and efficacy are, of course, closely linked. Medicine properly accepts greater risks if a treatment is proved effective. Conversely, even uncommon complications are intolerable if the therapeutic effect is speculative. A proper assessment of ECT must consider the evidence on safety and efficacy together.

### ECT IS UNSAFE

ECT can damage the brain. Opinion is divided between those who believe the claimed therapeutic effects occur in spite of the damage or because of it.<sup>1</sup> The very extensive medical literature on brain damage from ECT has been collected by Breggin<sup>2,3</sup> and by Friedberg.<sup>4,5</sup> Loss of memory is most frequently reported. Such reports began early,<sup>6,7,8</sup> and they continue still.<sup>9,10</sup> Intellectual functioning may be permanently impaired; the patient loses not only old memories, but also the ability to learn, concentrate, and work.<sup>11</sup> Even the most enthusiastic proponents of ECT often acknowledge serious complications. They do not deny the reported loss of intellectual function, but discount it or minimize it.<sup>9,12</sup>

The mechanisms of ECT damage to the brain have been well demonstrated. Autopsy studies report frontal lobe atrophy and enlarged ventricles.<sup>13,14</sup> Damage may occur in the temporal lobe<sup>15</sup> or in the brain stem,<sup>16</sup> and the damage may also be diffuse.<sup>17-19</sup> Damage on occasion is catastrophic.<sup>20,21</sup> In animal studies, considerable irreversible damage occurs consistently with as few as four shocks.<sup>22</sup> Although the mortality rate in humans is low, it is not insubstantial, and it may be as high as 1 in 200 for patients over the age of 60, a group at high

risk for depression and for whom ECT is frequently prescribed.<sup>2</sup> One extensive series reported a fatality rate of 1 in 100.<sup>23</sup>

In 1985, after 50 years of experience with ECT, the most important question about the safety of ECT remains unanswered: How frequent is moderate and severe brain damage? For reasons to be considered below, that question is not likely to be answered soon.

#### EVIDENCE FOR THE EFFECTIVENESS OF ECT IS WEAK

The evidence concerning the efficacy of ECT is thoroughly unconvincing. The single best compilation of evidence in favor of ECT is the recent petition of the American Psychiatric Association (APA) to the Food and Drug Administration for reclassification of ECT devices.<sup>24</sup> The petition, with its appendices, is several hundred pages in length. A critique of that petition<sup>25</sup> and of the publications on which it is based is too lengthy to reproduce here. A summary will have to suffice.

The APA supported its petition with a report and numerous appendices. Appendix E to the petition contains the APA's attempt to make a case for the effectiveness of ECT. But Appendix E ignores the APA's own source documents on effectiveness, compiled in Appendix J, citing them only once and that on a minor point. When one turns from the APA's argument (Appendix E) to its source documents (Appendix J), a very wide disparity is evident. The APA's own review of the efficacy literature concludes: ". . . little evidence was found to suggest that ECT alters the long-term course or natural history of affective illness."<sup>12</sup> (Reproduced in Appendix J, pp. 43-44.)

The APA study notes that even such evidence as exists is unreliable: "In a review of ECT outcome studies, it becomes clear that most measures of outcome tend to be clinical and retrospective in nature and long-term prospective outcome studies have not been performed."<sup>12</sup>

Moreover, most of the outcome literature dates from the 1940's and 1950's, when the standards of clinical reports almost uniformly were below the level on which a modern scientific judgment can be based:

Early clinical studies conducted in the 1940's and 1950's were generally "open" trials and therefore anecdotal or, at times, frankly impressionistic. During this early period patient samples were often not carefully defined; results varied considerably and were often vague in their conclusions.<sup>12</sup>

As to recent studies, the APA's Appendix J collects 41 articles. Of those, only 14 are concerned with efficacy, and 11 of the 14 are merely reviews of others' publications--reviews that accept uncritically the

early literature criticized by the APA's own report in the quotations above. The 41 items in Appendix J include only three original outcome studies.<sup>26-28</sup> Even these three reports fail to support the APA's conclusions.<sup>25</sup> For example, Taylor and Fleminger compared actual and "sham" ECT as treatments for schizophrenia. Only 3 months after the treatments, differences between the groups were "minimal."<sup>28</sup> (Reprinted in APA Petition, Appendix J, p. 128.)

The APA petition argued that ECT is an effective therapy for schizophrenia (Appendix E, p. 1) even though the above-quoted report was the only modern study adduced in support of the conclusion. The APA's argument was remarkably at odds with the views expressed by other authors whose work the APA appended in support of its argument.<sup>24</sup> (See Appendix J, pp. 51, 89, 117-126.)

One must also question the objectivity of the APA petition and its selection of supporting materials. The APA claimed "to consider data unfavorable to this petition, where pertinent" (Appendix E, p. 1), but the petition did not even cite the publications of the major ECT critics.<sup>2,4,5,29,30</sup> The petition likewise omitted citation of original reports of ECT ineffectiveness.<sup>31-33</sup>

#### FACTORS THAT BIAS ECT REPORTING

Several factors combine to produce a strong positive bias to the ECT literature, and these factors are likely to continue. First, clinical reports throughout medicine exhibit a bias for positive results. A leading enthusiast for ECT has described that bias:

Almost every new therapy suffers the same . . .; first a period of overenthusiasm, then disillusionment and finally neglect or disuse. The author of a new therapeutic procedure usually reports over enthusiastically, deceived by his own eagerness. . . . This over enthusiasm may even reach the stage of manic-like euphoria or elation. Then comes disappointment.<sup>34</sup>

The sources of the bias are not hard to discern. Physicians prescribe only those treatments they think are effective, so skeptics seldom have cases to report. For scientists, the reward structure of the profession encourages work in areas believed to be promising, not those suspected of being outmoded. Consequently, the medical literature in almost all fields contains scores of positive reports for every one that is negative, and this is the case for treatments that have long been discarded as well as for those now accepted.

Second, the ECT literature is subject to some special factors. Possibly the most important of these is the long tradition in Western medicine

of conceiving disease as "the enemy within." This tradition seems to be based in part on the religious concepts of sin and catharsis. The religious-military metaphor has been very prominent in medicine: one "attacks" disease with the medical "armamentarium." Until the present century, medicine was largely a matter of violent "combat" with the "invading" disease: violence--emetics, poisons, purgatives, and blood-letting.<sup>11</sup> Such anachronistic ideas have not yet been entirely dispelled. They emerge most obstinately in that discipline where the facts least well fit the metaphor: in psychiatry.

Another factor peculiar to ECT is the economics of medical practice. Most ECT is administered by a comparatively small proportion of practitioners, for many of whom the treatment provides a major component of income. Even a few people, strongly motivated, can be expected to outpublish a large number of skeptics whose interest in the subject is peripheral.\* Finally, ethical considerations make it likely that almost all ECT studies will continue to be done by those who are already convinced that ECT is effective and safe. Those who are unconvinced are ethically not well situated to prescribe ECT, and those who do not prescribe it cannot readily become principal investigators on ECT research projects. It is probable, therefore, that the biases that have marred the ECT outcome literature will continue indefinitely.

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\*So far as the writer is aware, no one has ever published an article critical of ECT while deriving a substantial part of his income from it. It is possible that instances exist with which the writer is unfamiliar. He would appreciate hearing of them.

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