



ECT: II: Patients who Complain

Br J Psychiatry 1980 Jul;137:17-25
By C.P.L. Freeman, D. Weeks and R.E. Kendell

Summary: Twenty-six subjects who complained of permanent unwanted effects following ECT were compared with two groups of control subjects on a battery of 19 cognitive tests. Many statistically significant differences were found in cognitive functioning, mostly attributable to the level of depression or medication in the complainers. However, after analysis of variance/covariance some differences still remained, indicating impaired cognitive functioning in the ECT complaining group.

The aim of the study was to identify a group of people who had specific complaints about electroconvulsive therapy (ECT), to catalogue their complaints and to assess their cognitive function. Results on a battery of cognitive tests were compared with results from a group of matched normal volunteers.

Methods

With the cooperation of the local evening newspaper (circulation 140,000 approx.), an article was written entitled "Is there any harm in shock treatment?" At the end of the article readers who thought that ECT had had an adverse effect on them were asked to contact one of the authors:

So if YOU have had ECT, no matter how recently or how long ago, and reckon it has had an adverse effect on you, the group would be grateful if you would help by allowing them to test your memory and ability to think quickly, and see how you compare with other people. It would only take about an hour or so one afternoon...and there are no shocks in store. That's a promise!

We also asked consultants in the hospital to let us know of any patient who had complained about ECT.

Each complainer was given an unstructured interview by either C.P.F. or R.E.K. A note was made of their complaints, time and number of treatments, and whether they would willingly have ECT again. An attempt was made to assess their mental state at interview to see if they were clinically depressed or otherwise ill and a note was made of their drug treatment, if any. This rough assessment was supplemented by completion of the Wakefield depression self-rating scale (Snaith et al, 1971) and the Middlesex Hospital questionnaire (Crown and Crisp, 1966). (All references are at the end of Paper III).

Subjects were tested for cognitive function by D.W. who did not know the nature of their complaints. A battery of 19 tests was used, as described with literature references at the end of Paper III. They covered visual design, verbal and spatial positional learning, verbal and visual memory, and there were two tests of remote memory, tests of the ability to link faces with names, and tests of perceptual aptitude and concentration.

The subjects also filled in the Broadbent cognitive failures questionnaire which gives a self-rating of the subject's memory and concentration difficulties.

Controls - A group of volunteers who had not had ECT, and most of whom had not been psychiatric patients, were tested in exactly the same way. These were group-matched with the ECT complainers for age, sex, social class, educational level and intelligence. These volunteers were also obtained via an article in the same evening newspaper which asked for people who would be prepared to help out with research projects at the Royal Edinburgh Hospital.

The samples - Twenty-eight people replied to the newspaper article, 10 men and 18 women. One woman had Alzheimer's disease and was attending the hospital as a day patient. She had insisted on coming when her husband brought the article to her attention. She was interviewed but was not testable.

Of the remaining 27, 14 had specific complaints about ECT (newspaper complainers) and 13 had misunderstood the article (newspaper non-complainers) and attended because they thought we wanted to have any views on ECT. They had either good or neutral things to say about the treatment. On closer questioning most had one or two very minor complaints about the treatment.

Twelve patients were identified via psychiatrists in the area, (hospital complainers), as they had told their doctors that ECT had produced enduring unwanted effects.

Results

The majority of complainers were women: 22 to 5 men (see [Table I](#)). There were only minor differences between the groups, except that the hospital complainers had last had ECT much more recently than either of the newspaper groups.

Case summaries are given in the Appendix. The commonest complaint by far was about some type of memory impairment. There were two main types of memory complaint: everyday forgetfulness such as forgetting faces or names, forgetting phone numbers or messages, forgetting things when going shopping; and secondly, holes or gaps in past memories.

Most subjects accepted that there might be poor memory for the time of their illness and course of ECT. Their complaints were of lost periods, usually some months before ECT but occasionally afterwards. One subject complained he could not remember an annual summer holiday, another a wedding which occurred six months after ECT. The amount of distress this memory impairment caused varied considerably, but most found it irritating rather than incapacitating.

Other complaints were of epilepsy (patient 7), severe episodic pain (patients 7 and 21), personality change (patients 9 and 16), difficulty in knitting and fine hand function (patient 12), poor concentration (patients 22, 24 and 26). Many subjects had more than one complaint.

In all these cases the subjects definitely related the onset of the complaint to a course of ECT.

Only one complainant was against ECT in principle (No. 4). She felt it was a senseless and illogical thing to pass an electric current across people's brains when they were depressed.

Of the total of 26 complainers 4 said they would have ECT again. 13 said they would never have it again under any circumstances and 9 said they were doubtful and it would depend on the circumstances, such as how depressed they were or whether antidepressants had failed. All the non-complainers said they would have ECT again.

Thus we did not attract any cranks or politically motivated complainers by our inquiries or, if we did, we didn't detect them. All but one of the subjects put their complaints in a reasonable balanced way, they seemed generally concerned by their difficulties and often relieved when told the results of their test scores. We did not get the impression that people were exaggerating their complaints or 'faking bad' on the cognitive test results.

Comparisons

The subjects as a whole rated themselves as more depressed than the matched volunteer controls on the Wakefield scale. They also scored more highly than the volunteers on the Middlesex Hospital questionnaire (MHQ) on both total score and all subscales except hysterical personality. They rated themselves as having more cognitive failures on the Broadbent questionnaire. (See [Table II](#)). ECT complainers (n=26) scored as more distressed on the same tests than ECT non-complainers (n=13). (See [Table III](#)).

As drug taking varied greatly from subject to subject both in amount and type of drug, each subject was crudely rated on a score of 0-4 on the amount of psychotropic drugs taken. (Example: nitrazepam 5 mg taken the night before would score 1; diazepam 5 mg t.d.s. would score 2; amitriptyline 150 mg daily would score 3; diazepam 30 mg daily, barbiturates in doses of 200 mg daily, major tranquilizers if more than 100 mg daily of chlorpromazine or its equivalent would all score 4. Using this measure the complainers were taking more drugs than the non-complainers.

Thus on all measures of symptoms and medication the complainers scored more than the non-complainers and the subjects as a whole scored more than the normal volunteer controls. The non-complainers' scores were closer to the normal volunteers than to the complainers.

Comparisons on cognitive tests

When all ECT subjects were compared with the normal controls they were significantly impaired on eight tests, (See [Table IV](#)) and not impaired on eleven. They were slower than controls and their retention was poor; they couldn't remember a spoken paragraph of text as well; they couldn't put

names to faces as well. They scored poorly on memories of their own past and on remembering personalities since the 1950s. In general, the test results appeared to match the subjects' complaints.

Despite rating themselves as being more depressed, more anxious etc., and being on drugs, they did as well as the matched volunteers on the majority of tests. Their new learning (visual spatial and verbal) was not impaired and the remembered personalities from the 1930s, 1950s as well as controls.

Removing the 13 non-complainers from the ECT group and then comparing the complainers with normal controls alters the picture very little. The difference on personal remote memory becomes non-significant because the N is smaller and the means remain the same. Complainers were significantly better than non-complainers on one test and worse on two. (Table V)

Summary of group comparisons

The picture emerges of a group of patients who have had ECT, who rate themselves as more depressed, having more symptoms in general and currently receiving more medication and who perform significantly worse on number of cognitive tests than a group of volunteer controls. They also tend to be more impaired than a small group of non-complaining subjects who have also had ECT (See also Table VI).

A crucial question therefore arises: How much of the poor performance of the complainers is due to their level of depression and medication?

Analysis of variance

To try to answer this question the test results on all tests by all subjects and controls were put into an analysis of variance/covariance matrix with level of medication, level of depression, total symptom score on MHQ, age and social class as covariants. The object was to determine how much of the variance in test cores could be accounted for by these five variables, and whether having allowed for this the test results which had discriminated between subjects and controls still did so. We examine the previously significant differences test by test.

(a) Decision time and Movement time:

These are measures of speed. Level of medication had a very large effect on results and level of depression a significant effect. There were smaller contributions from age and MHQ scores. When these factors were allowed for there was no significant difference between complainers and controls on either test.

(b) Famous personalities of 60s and 70s:

All five covariates had an effect and when they were allowed for the significant difference between controls and complainers disappeared.

(c) Logical memory test:

The level of significance increases, so some of the covariates must have been operating in the direction of reducing any difference. In other words, the difference between complainers and controls becomes greater when the five covariates are allowed for.

(d) Face-name test:

Social class was a significant covariate. All the other covariates had little effect and the difference between the complainers and controls remained significant, $P < .05$.

(e) Verbal learning:

Medication had little effect on this test. The Wakefield score and total symptom score of the MHQ both had large effects and age had some effect. When all five covariates were allowed for the difference between complainers and controls remained significant, $P < .05$.

(f) Personal remote memory:

All covariates had some effect on this test and when they were allowed for the controls just missed significance at $P < .05$.

Individual test results

So far we have only considered group comparisons on cognitive testing. Although there were a number of statistically significant differences between the means of the groups, when translated into clinical terms these differences are small.

When the scores of individual subjects are examined there are some large deficits on some tests. A few patients scored well into the organic range on some measures. Sometimes there was a probable explanation for these deficits. For instance in patient 1, and possibly in patient 5, alcohol could be implicated. Patient 20 was taking large amounts of psychotropic medication. Patient 10 was on a considerable amount of medication and was very anxious. Patients 24, 26 and 27 were clinically depressed. However in a number of patients, particularly numbers 2, 14, 16 and 25, there seemed to be no ready explanation for their poor test results. They were virtually symptom-free, not taking drugs and as far as we could tell had no history of brain damage or excessive alcohol consumption.

The most convincing complainers who had no obvious explanation for their poor memory appeared to have nothing in common. They had not had excessive amounts of ECT, nor had their ECT been more recent than the other complainers, nor, as far as we knew were there any complications during their treatment. There were no comments in the case-notes about things going wrong such as prolonged hypoxia, missed fits, stuns, or excessive applications of electricity.

Discussion

The findings of this study must be interpreted with caution. We have not shown that ECT causes permanent memory impairment, though our results are compatible with this possibility. The study was designed as a descriptive one. What we have done is to describe in some detail a self-selected group of patients who complained about enduring unwanted effects of ECT. We have found that members of this function but on the majority of tests they performed as well as control subjects. On the tests where they were impaired, much of the impairment could be accounted for by other factors such as their level of depression and their level of medication. However, even when these factors and three other variables were taken into account not all the difference could be explained.

We are left with the fact that on three of a large battery of tests the ECT complainers performed significantly worse than the controls. although these results are statistically significant their practical significance is less certain. The differences on test scores were not great when the groups as a whole were compared, and it is not possible to say whether the differences are certainly due to the ECT, or to something else which had happened in the period since the end of treatment. The length of time since the last course of ECT varied from nine months to thirty years and in the group than answered the newspaper advertisement the mean time since their last ECT was ten years.

There are two possible explanations for our findings. The first is that ECT does indeed cause some lasting impairment of memory in a small proportion of the people who receive it. The second is that our ECT complainers were simply people whose memories came in the lower half of the normal range, or had some mild impairment of memory for other reasons, and mistakenly attributed these failings to the treatment they had received years before. One man, for example, had a history of heavy drinking and had fallen down the stairs and concussed himself on four occasions.

In our study on patients' attitudes to ECT (see Paper I, p. 12), we found that 12 percent of patients agreed with the statement that "My memory now is better than ever." Had our newspaper article been worded differently it is conceivable that we could have attracted a group of people who had had ECT but showed memory was better than average.

What is clear is that the present subjects themselves clearly linked their memory impairment with having had ECT. Some were quite emphatic that their memory had been affected.

In a number of cases the memory disability had become apparent shortly after the course of ECT and had remained constant over many years. It may be that ECT does cause some degree of permanent memory impairment in a small proportion of the patients who receive it, but we consider that our own and other comparisons of carefully matched groups of patients receiving ECT and drug treatment indicate fairly convincingly that ECT does not normally produce such enduring effects on memory, though they do not prove that it never does so. It would, however, require a very large scale, and probably multicentre, prospective study to detect impairments that only affected, say, one patient in a hundred.