Review of ECT prescription and outcome in depression

Carol Robertson and John M. Eagles

Few recent studies have investigated the prescription of electroconvulsive therapy (ECT) to depressed patients and their progress thereafter under ordinary clinical conditions. From case records, 412 courses of ECT were studied. ECT was efficacious in the short term, especially for patients with psychotic depression and for those over 65 years of age. Fifty-three per cent of patients required readmission in the six months following the index course. Neither age nor psychosis predicted whether readmission occurred. While short-term outcome is good, notably for the elderly and the psychotically depressed, patients are highly liable to relapse after ECT. High quality after-care is thus of paramount importance.

Therapeutic trials of bilateral electroconvulsive therapy (ECT) have consistently established that it is a very effective and rapidly acting treatment for patients with depressive illness (Freeman *et al*, 1978; Johnstone *et al*, 1980; Brandon *et al*, 1984; Gregory *et al*, 1985). The Northwick Park and Leicestershire trials (Clinical Research Centre, 1984; Brandon *et al*, 1984) concluded that the benefits of treatment apply only in the short term, and that psychosis may be a positive predictor of response.

While of undoubted importance in establishing the efficacy of ECT, as Kendell (1981) has pointed out, randomised controlled trials of ECT may not contain an identical group of patients to those who would receive ECT under ordinary clinical circumstances. For example, in the Nottingham study (Gregory *et al*, 1985), only 69 of 234 eligible patients (29%) entered the trial, while in the Northwick Park trial (Johnstone *et al*, 1980), 64% of those admitted with depressive illness were entered into the trial. The present study reports a naturalistic review of ECT practice, in a large sample over a two-year period, including assessment of longer term progress and possible predictors of response.

The study

The patients in this study were those receiving ECT in Aberdeen Psychiatric Hospitals during 1989 and 1990. The catchment population comprises Grampian (excluding Moray), plus Orkney and Shetland, a total population of 463 460, which represents the largest catchment ECT service in Scotland. All patients receiving ECT during this two-year period were identified through the ECT Anaesthetic Books.

During 1989 and 1990 a total of 448 patients received an index course of ECT. Several of these patients received more than one course of treatment over the two-year study period, but only the initial course was included as the index course. A course was defined as 'consecutive treatments given less than one month apart'. The psychiatric case notes of these patients were examined, with only one patient's records proving impossible to trace, giving information on a total of 447 patients.

All records were examined by C. R. Data were collected for each patient as follows; gender, age, diagnosis, immediate efficacy of the course, patient's progress over the following six months, status at two years following treament and cause of death if deceased. It was not possible, from the information available in the case notes, to make a full DSM–III–R diagnosis, but it was possible to distinguish between those depressed patients who were, and those who were not, psychotic. A total of 35 schizophrenic patients were identified as having been treated with ECT and these patients were removed from the analysis, which was confined to the remaining 412 depressed patients.

The immediate efficacy of treatment, i.e. at the conclusion of the course of ECT, was categorised for depressed patients as follows: (a) good – no evidence of significant residual depression; (b) intermediate – definite improvement but still significant depression, or (c) poor – no improvement or deterioration of condition.

Outcome at six months was grouped as: (a) readmission to hospital and given further ECT; (b) readmission with no ECT; (c) follow-up as outpatient; (d) discharged from care; (e) lost to follow-up, or (f) deceased. The patients at two years were grouped as: (a) open cases still receiving out-patient care; (b) current in-patients; (c) closed cases, or (d) deceased. For the patients who had died since their ECT, C. R.

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established the cause of death to ascertain if the patient had committed suicide or died of natural causes.

Findings

Of the 412 patients, 284 (69%) were female. No treatment was given to patients under 18, with the age range of those treated being 19–89 years. Ninety-five per cent (391) of the ECT was administered bilaterally.

Efficacy of treatment

The results demonstrate the high level of success of treatment in the short term, with 276 (67%) of courses having a 'good' outcome, 93 (23%) an 'intermediate' outcome and only 43 (10%) a 'poor' outcome. However, 218 (53%) of patients required readmission in the six months following the index course, and 131 (60%) of these patients received repeat courses of ECT. Thirty-one per cent (127) of patients were followed-up purely as out-patients, and 49 (12%) were discharged from care in the first six months. Only two (0.5%) were lost to follow-up.

At two years following treatment, 34 (8%) patients were current in-patients, 179 (44%) patients were out-patients and 199 (48%) were closed cases (including deaths). During the two years following the index course of ECT a total of 18 patients died. Only three of these patients committed suicide, the other 15 having died of natural causes.

Possible predictors of outcome

Outcome was compared across the 'hard' case note variables of gender, age and presence of psychosis. Short-term outcome was significantly better in the over 65s (χ^2=12.96, d.f.=2, P=0.0015) (see Table 1). Psychotic depression was strongly associated with better short-term outcome (χ^2=18.99, d.f.=2, P=0.00008) (see Table 1). Age and psychosis did not seem to be linked with 49 (32%) of the over 65s and 103 (39%) of the under 65s having a psychotic depression (χ^2=1.81, d.f.=1, P=0.28).

Excluding deceased patients and those lost to follow-up, no predictors of relapse to the point of readmission could be found over the six months following the course of treatment. Of the psychotic patients, 88 (58%) were readmitted compared with 130 (50%) of the non-psychotic patients (χ^2=2.40, d.f.=1, P=0.12). No significant differences in terms of readmission were found at six months between the sexes, in that 61 (48%) men were readmitted and 157 (55%) women were readmitted (χ^2=2.06, d.f.=1, P=0.15), or between the 138 (53%) under 65s and the 80 (53%) over 65s readmitted (χ^2=0.02, d.f.=1, P=0.90).

Table 1. Factors influencing immediate outcome in depressed patients after ECT

	Good outcome *n* (%)	Intermediate outcome *n* (%)	Poor outcome *n* (%)
Age <65 years	159 (61)	70 (27)	33 (12)
Age 65 and over	117 (78)	23 (15)	10 (7)
Depressed non-psychotic	158 (61)	63 (24)	39 (15)
Depressed psychotic	118 (78)	30 (19)	4 (3)

Comment

The strengths of this study are its size and the thoroughness of data collection; over a two-year period data are reported on 412 of the 413 index courses of ECT administered for the treatment of depression in Aberdeen based psychiatric services. The naturalistic design constitutes both a strength and a weakness. In contrast to controlled trials it describes 'ordinary' clinical practice, but the quality of the data is inevitably less precise and comprehensive.

The total number of ECT treatments given to the catchment population in 1989–90 yielded an average of 4.3 treatments per 1000 population per year. This compares with the figures in England and Wales reported by Pippard & Ellam (1981) at 3.67 per 1000 population and those of Latey & Fahy (1988) at 5.37 treatments used per 1000 population in Ireland. The age profile and gender ratio of the patients who received ECT is very similar to that reported by Pippard & Ellam (1981).

The favourable short-term outcome after ECT in our study accords with findings from controlled trials (Freeman *et al*, 1978; Johnstone *et al*, 1980; Brandon *et al*, 1984). It is reassuring that this was reproduced among a large group treated under ordinary clinical conditions. The positive predictive value of psychotic symptoms with regard to short-term outcome is also in keeping with findings from controlled trials. (Brandon *et al*, 1984; Clinical Research Centre, 1984).

Patients over 65 years of age responded more favourably in the short term than did their younger counterparts. Wilkinson *et al* (1993) reviewed the literature on the relationship between age and outcome following ECT and concluded that the elderly tended to fare better. Their own study of 78 patients found a strong positive correlation between increasing age and outcome. It is possible that unknown factors, which are themselves associated with good outcome, are more common in the elderly,

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predisposing them to be selected to receive ECT. The presence of retardation would be one such possibility as highlighted by Brandon *et al* (1984).

Controlled trials of ECT have found that the therapeutic effects of ECT do not endure (Johnstone *et al*, 1980; Brandon *et al*, 1984; Gregory *et al*, 1985). Given that a good or intermediate outcome occurred following 90% of the courses of treatment, but in 53% of cases readmission was required within the next six months, our findings bear out those of controlled trials. Kiloh's (1985) review concluded, from research conducted in the 1960s, that about half of recovered cases relapsed in the six months following a course of ECT. It seems that such relapse rates may have changed little in the ensuing 30 years.

Our study confirms that psychotic depression responds preferentially to ECT and suggests that elderly depressed patients may respond better than their younger counterparts. The very high relapse rates, the frequency with which further courses of ECT were administered and the high proportion of patients requiring continued care two years later, suggests the need for long-term follow-up and for energetic prophylactic treatment. While we can predict that the large majority of our depressed patients will respond to ECT, the much greater challenge is to keep these patients well thereafter.

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