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Electroconvulsive Treatment in Great Britain

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A survey of the practice of electroconvulsive treatment, ECT, in Great Britain was made during 1980–81 for the Royal College of Psychiatrists, supported by grants from the Department of Health and Social Security and the Scottish Home and Health Department. This paper is a summary of the main findings together with suggestions from the authors.

Method

A questionnaire, designed to establish how psychiatrists prescribe and use ECT and their opinions about it, was sent to all Members of the Royal College of Psychiatrists in Great Britain who could be traced, to all consultants in psychiatry listed in the 1979 Medical Directory and to all doctors not in training, some 4 per cent of the total, who might be involved in giving ECT. A response was obtained from 95 per cent of those surveyed. Two thousand seven hundred and fifty-five respondents (86 per cent of all sent) provided enough information for detailed analysis. Each of the 3221 doctors to whom the questionnaire was sent also received a record sheet designed to collect information about all patients given ECT during a three-month prospective period. Four hundred and fifty-two consultants, 35 per cent of those identified as having prescribed ECT during the 6 months before the enquiry, recorded 2594 courses of ECT.

Another questionnaire, designed to establish the way ECT is given, was sent to 347 ECT clinics (some 90 per cent of all the 380–400 places where ECT is given). Visits were made to 180 of these and we saw ECT given in 101 of them. Statistics for the use of ECT during 1979 were collected and compared with those independently obtained by the DHSS.

A short postal survey of 614 general practitioners was made to discover their opinion of the effect of ECT on recently treated patients in their practices. The response rate was 79 per cent.

Analysis of the 2755 Responses

Nearly half of the 2755 respondents and two thirds of clinical consultants practising at least partly in adult psychiatry and/or psychogeriatrics were born before 1930 and are old enough to have had experience of ECT before it was generally modified by anaesthesia and relaxant. Seventy-eight per cent were born in, and a slightly higher proportion qualified in medicine in, the British Isles.

Three quarters had a Diploma in Psychological Medicine and about one in four was also a member of another Royal College (Physicians or General Practitioners) and/or had a higher medical qualification (eg M.D., Ph.D.). One per cent had no formal psychiatric qualification. Three-quarters were consultants or of equivalent status. Only 1 per cent of consultants working at least partly in adult psychiatry/psychogeriatrics had practised psychiatry in Britain for less than 5 years.

Ninety-two per cent of all respondents were engaged mainly in clinical work and of these, 2 in 3 worked at least partly in adult psychiatry/psychogeriatrics. Of non-clinical psychiatrists, 80 per cent were mainly in teaching and/or research and to a lesser extent in administration.

In response to a question about litigation less than 1 per cent of respondents reported any involvement over ECT, in some cases overseas. Nine legal actions in the last 25 years involved respondents; only one case (Bolam v. Friern HMC, 1957) came to judgment and in that case the claimant was unsuccessful.

Doctors' opinions

Seventy-one per cent responded to a question inviting comments on the Royal College of Psychiatrists' Memorandum on ECT (1977). Ninety-one per cent of these thought it gave adequate guidance on how to give ECT and on legal and administrative aspects. The minority was strongly critical because of insufficient detail, too little stress on importance of staff training, inadequate guidance on consent procedures, and too rigid advice to use Section 26 of the Mental Health Act 1959 to treat unwilling patients and those unable to give consent.

Thirty-four respondents (1 per cent) were wholly opposed to the use of ECT. Eighty-seven per cent of all respondents and 97 per cent of clinical consultants working at least partly in adult psychiatry/psychogeriatrics regarded ECT as at least occasionally useful but this response was heavily qualified. There was overwhelming agreement that the main (and for many, the only) indication for ECT was in the con-

ditions included in the group 'depressive psychosis; involutional melancholia; endogenous depression'. There was considerable support for at least occasional use of ECT in schizoaffective disorder, mania, acute (especially catatonic) schizophrenia and depression associated with other conditions.

Many have found ECT of especial use in the elderly, even in apparently neurotic depressive states, and considered it safer than drugs. ECT has had a very limited place in mental handicap practice, mainly for depressive illness in mildly handicapped people, rarely for other reasons. A minority of mental handicap psychiatrists opposed its use for fear of further impairing damaged brains. In child psychiatry its use has been even more restricted; it was rarely used and mostly, if not only, in postpubertal children with adult-type psychotic illness where some claimed good recoveries. A minority opposed its use in children under any circumstances.

How ECT is given

The following information from the analysis of the survey was given mainly by the 46 per cent of respondents, including 78 per cent of clinical consultants working at least partly in adult psychiatry/psychogeriatrics, who had prescribed and/or physically administered ECT in the 6 months before the survey.

Most ECT was administered by junior doctors who were not Members of the College and who were not included in the postal survey. Seventy-six per cent of consultants who had prescribed ECT did not administer it themselves. Most ECT was given in hospital clinics; 7 per cent of respondents gave ECT elsewhere, for example in nursing homes, patients' homes, prisons.

One third said that they often gave unilateral ECT and two thirds that they usually gave bilateral ECT. In 79 per cent of the clinics we visited unilateral ECT was rarely or never used. Where unilateral ECT was said to be used, 54 per cent of respondents stated that they used a parieto-temporal placement of electrodes. Thirteen per cent said they used the mastoid-temporal placement recommended by the College Memorandum (1977), but we found this in only 6 per cent of clinics visited. In determining cerebral dominance for unilateral ECT, 66 per cent relied on asking the patient whether he was right-handed; 22 per cent performed fuller clinical assessment or additional tests. Three per cent did not determine dominance but always gave right-sided ECT.

Eighty per cent reported that ECT was given twice weekly, partly because it was administratively convenient, staff and anaesthetists not being available more often. Some gave ECT three times a week in the hope of quicker results. Seventy-five per cent reviewed treatment at least once a week; 10 per cent usually prescribed a fixed course of treatment and reviewed at the end. Twenty-three per cent gave one or two extra treatments after clinical recovery.

Ninety-four per cent of respondents never gave more than one seizure in a session. Three per cent did so rarely, most often in cases of acute mania. Maintenance ECT was used by a minority (22 per cent) but by most of these only rarely. The main indications given were severe intractable recurrent depression, by 65 per cent; and chronic schizophrenia, by 16 per cent. There was no evidence that regressive ECT is used.

Most psychiatrists saw no disadvantages in giving drugs concomitantly with ECT, except for monoamine oxidase inhibitors which 42 per cent would stop; 24 per cent of anaesthetists were said to insist on this. All but 2 per cent of respondents sometimes or often gave antidepressive drugs for at least a few months after ECT for depression.

Consent and responsibility

A doctor usually explained ECT and the need for it and discussed risks with the patient and relatives. Nurses were often, and social workers rarely, involved in this. Discussion of risks was often only brief. No written explanation of ECT was given in at least 87 per cent of cases.

For patients who cannot give valid consent, or who are unwilling, the decision to give ECT was overwhelmingly seen to be the responsibility of the psychiatrist. Multidisciplinary and other advisers were often acceptable for consultation but not as final decision makers.

For informal patients who need ECT but cannot give valid consent 54 per cent of psychiatrists would seek a second consultant's opinion. Eighty-eight per cent would give ECT, many only after drugs had failed or if the patient's life was in danger; of these, about one third would first inform the next of kin and preferably gain their consent; one third would give ECT only after detaining under the Mental Health Act, as recommended by the College Memorandum; and one third would, where appropriate, follow either of these courses. Most would use Section 26 of the Mental Health Act 1959 but 19 per cent were prepared to use the legal safeguards provided by Section 25.

A detained patient who refuses ECT would, if necessary, be given ECT with the knowledge of the next of kin by 59 per cent and even if the next of kin objected by another 16 per cent. However, 21 per cent would withhold ECT; many commented that they would never give ECT to an unwilling patient. Many

would ensure that the patient, even if detained under Section 25, was first placed on Section 26.

Details of ECT Practice

ECT was given in nearly 400 units, including about 30 private nursing homes. Information was obtained on about 90 per cent of these units. Over half of them were visited and ECT was observed at more than half of these.

In 59 per cent of clinics only the consultant prescribed ECT but in 36 per cent medical assistants or, usually in the absence of the consultant, senior registrars or registrars may do so. Ninety-three per cent of units carried out a routine physical examination before ECT. In about half this was supplemented by chest X-rays, haemoglobin, and erythrocyte sedimentation rate estimations. Other tests were carried out if indicated or, rarely, routinely. Skull X-rays were taken in 9 per cent.

ECT machines

Seventy-two per cent of the 165 National Health Service units visited had an up-to-date ECT machine (ie most recent model) and 52 per cent had an up-to-date reserve machine. The only up-to-date machines are the Ectron Series 4 range, Siemens Konvulsator 2077 S and Theratronics Transpsycon ZUSS/3 and Phasotron. The Theratronics machines do not conform to the Safety Standards of the Hospital Technical Memorandum 8 (1976) which was replaced by the more stringent British Standard 5724 Part 1 (1979) in 1981. Theratronics Ltd has been taken over by Ectron Ltd; its machines are no longer in production nor can service be provided for them.

In some parts of the country more than half the machines in use were obsolete (ie not current model); had they been returned to the manufacturers for regular service, replacement should have been recommended. Fifty-nine per cent of units relied entirely on their local engineering or electronics departments at District, Area or Regional level for servicing their machines; many had been repairing apparatus which should have been scrapped. About 40 per cent of clinics did not regularly maintain their apparatus.

Most clinics took only perfunctory measures to ensure good electrical contact between headset and scalp, relying on the conducting solution only. Seventy-two per cent of clinics used Ectron's caliper-type bilateral or Y-shaped unilateral headsets. Eighteen per cent had the possibility of using individually held electrodes.

Anaesthesia

Atropine was given intravenously with the anaesthetic in twice as many clinics as gave it beforehand by subcutaneous or intramuscular injection. There were Regional differences and in Scotland less than half the clinics gave atropine intravenously. Most clinics gave atropine in a dose of between 0.3 and 0.6 mg but 5 per cent of clinics never gave atropine.

An anaesthetist was almost always present during both treatment and recovery. In 22 per cent of clinics the anaesthetist was always a consultant; consultants were more or less involved in 43 per cent of clinics. Twenty-five per cent had GP clinical assistants; over 50 per cent of clinics relied wholly or partly on anaesthetists in training. In the absence of the regular anaesthetist, if there was one, most clinics had to rely on a duty anaesthetist. The patient rarely met the anaesthetist until he came to the clinic but where there was a regular anaesthetist he often knew many of the patients. In 19 per cent of clinics the anaesthetist was not supplied with much information about the patient, even about the drugs he was having.

Short-acting anaesthetics and muscle relaxants were used in almost all cases. The most frequent combination, in 65 per cent, was of methohexitone (Brietal) with suxamethonium chloride (Scoline). There were Regional differences; eg Scotland used thiopentone more often than other Regions. Suxethonium bromide (Brevidil E) was preferred by 14 per cent of clinics.

Most patients were kept well oxygenated throughout treatment but a few clinics did not routinely administer oxygen. Forty-six per cent of clinics were in hospitals equipped for intensive care or would have referred 'poor risk' cases to such a hospital. Some said there were no absolute contra-indications to giving ECT and many left such decisions to the anaesthetist. The conditions most often thought to bar the giving of ECT were recent cardiac infarction or other serious heart disease, and intracranial disease (stroke, tumour and raised pressure).

Staff

Consultants were rarely involved in the work of a clinic; in 90 per cent the treatment was left to junior doctors, usually registrars or SHOs on rota, or to GP clinical assistants. About half the junior staff received only minimal training, ie someone usually not much more experienced had shown them how to press the button. Only one in four doctors received some tuition but often not until after he had begun administering ECT.

Forty-four per cent of clinics had more than two nurses in the treatment room while ECT was being given. Twenty-one per cent of clinics had only one nurse supervising the recovery of 5 or more patients.

Technique of administration

Very few diagrams of unilateral and bilateral ECT placements were displayed in clinics and of these some were confusing.

Over 90 per cent of clinics used unidirectional or bidirectional waveforms such as are delivered by all machines in common use. The Ectron Duopulse can also give pulsed currents (waveforms 3 and 4) but very few clinics used pulsed currents only. Glissando ('Ectonus') was always or sometimes used in 10 per cent of clinics.

There was rarely a consistent clinic policy to guide the operator if the first stimulus failed to elicit a seizure.

Nearly all hospitals had essential equipment such as suction apparatus, oxygen and emergency drugs. Forty-four per cent had a cardiac defibrillator or had access to one. We found no evidence that a defibrillator had ever been used successfully on a patient who had collapsed during ECT, a very rare occurrence, or that any patient had died because a defibrillator was not available.

Most clinics used a form designed to record details of the treatment. Twelve per cent made a note in the case notes only. Most clinics also kept a clinic register; this was often just a book noting the names of patients who attended and the number of the treatment in a course, but some kept detailed records of the work of the clinic.

Description of clinics and clinic ratings

Forty-six per cent of clinics were purpose-built or in buildings adapted for ECT; these units had three separate rooms for waiting, treatment and recovery. Not all of these clinics and few others were really suitable. In 24 per cent of clinics ECT was done in one room, usually a ward dormitory.

Using criteria derived from the Royal College of Psychiatrists' Memorandum on ECT (1977), we rated each of 100 clinics where we saw ECT. Each was rated in respect of premises, equipment, anaesthetist, psychiatrist, nursing staff, patient care, and the observer's assessment whether he would accept ECT, if necessary, in the clinic.

Sixteen per cent of clinics had no more than minor deficiencies in any aspect rated and 43 per cent aroused few reservations about accepting treatment. Twenty-seven per cent of clinics had serious deficiencies such as low standards of care, obsolete apparatus, unsuitable buildings, and could not easily be brought to a satisfactory standard; included in these were 16 per cent with very serious shortcomings: ECT was given in unsuitable conditions, with a lack of respect for the patients' feelings, by staff who were ill-trained, including some who consistently failed to induce seizures.

National Statistics for the Use of ECT in 1979

The figures collected are thought to be complete. In 1979, 200,000 individual ECT were given, 97 per cent in National Health Service units. The highest use, relative to the size of the population served, was in the Yorkshire Region: more than three times as much as in the Oxford Region where use was lowest. Among hospitals the differences were even greater. Some hospitals providing a full service for a catchment area gave up to 17 times as much as others. Regional differences are only partly explained by there being one or more high use hospitals in a Region. There seems to be no single factor responsible for the differences: there is, for example, no obvious link with unemployment, poverty, underfunding of health or social services or medical staffing levels.

Three-Month Prospective Study

Two thousand five hundred and ninety-four courses of ECT were reported, about one third of all ECT likely to have been given. Courses were reported from 242 hospitals and other clinics (62 per cent of all which administered ECT). Between them, these units gave about 80 per cent of all ECT administered in Britain and the sample is thought to be reasonably representative of current practice.

Sixty-two per cent of the courses reported were given to patients aged over 50. The female to male sex ratio was 2.27. Thirteen per cent were given a primary diagnosis of schizophrenia. Thirty-three per cent of these were noted to be depressed. Eighty-three per cent were given a primary diagnosis of depression. 'Failure of other treatment' accounted for 50 per cent of all reasons given for using ECT; symptoms or illness-behaviour accounted for one quarter.

Sixty per cent of patients had received ECT before: 34 per cent of all patients had had two or more courses or more than 11 ECT; about 5 per cent had received more than 50 ECT. In a few hospitals, which gave much more ECT than the average, a high proportion had had much ECT before.

The median number of ECT in completed courses was 6.55. In completed unilateral courses the median was 6.89 and in bilateral courses, 6.45. These figures show that more unilateral than bilateral ECT was given in a course and may be taken to support the the opinion that more unilateral than bilateral treatment is needed; the difference is less than one extra treatment. Patients given only unilateral ECT were rated as showing significantly less memory disturbance ($P < 0.001$) than patients given bilateral treatment. In

neither depression nor schizophrenia is there a significant difference between the outcome of treatment by unilateral and bilateral ECT.

When the doctor and patient did not agree on the outcome of treatment (20 per cent of cases), the patient was more than twice as likely as the doctor to think he had made less improvement ($P < 0.001$). In 4 per cent of cases either the doctor or, much more often, the patient thought he was worse. Where the doctor and patient agreed about the outcome, 63 per cent were rated as 'much improved' and 28 per cent were 'improved'. The best results, 73 per cent 'much improved' and only 5 per cent 'poor', were in the largest diagnostic category of depressive psychosis and endogenous depression. Seventy-five per cent of all patients made at least some improvement which was maintained without relapse for at least 28 days.

Complications of treatment were uncommon. One death occurred during ECT and three others within 72 hours of ECT which may therefore have been a contributory cause of death in from 1 in 4000 to 1 in 16,000 treatments.

General Practitioner Survey

Forty-one per cent of the 467 general practitioners who completed a questionnaire had at least one patient treated with ECT during the two years before the survey. The patients closely resembled those of the three-month prospective study in age, sex ratio, diagnostic categories and adverse effects of treatment. However, the results of ECT for depression as reported by the GPs were 66 per cent 'much improved' or 'improved' compared with 87 per cent in the three-month study.

Discussion and Suggestions

The giving of ECT is not a complicated procedure nor are the principles underlying the treatment difficult to understand. Nonetheless the ECT machine must be appropriate and in working order, the patient must be fit for treatment, appropriate anaesthesia must be given, the electrodes must be properly applied with adequate contact, the timing and amount of current must be appropriate, and the staff must be able to tell whether or not a convulsion has taken place. In addition, attention to the circumstances surrounding the treatment and the general management of the patient during it can greatly enhance the quality of care. It should be possible with the supervision and interest of responsible consultants for an, at least, adequate standard to be achieved in all hospitals.

On the basis of observations made during the visits to ECT clinics, from comments received from clinic staff, and from comments received from doctors responding to the questionnaire the following suggestions are made by the authors.

Responsibility

Responsibility for the organization and supervision of ECT rests with the consultant psychiatrist. In each hospital one consultant should take full and clearly understood responsibility for the ECT clinic and for the teaching and training of junior doctors in the theory and practical administration of ECT. He should be available to all staff concerned with giving ECT, personally involved in the clinic and seen to be interested, knowledgeable and effective. He must be satisfied with the services provided to the clinic by others, especially the senior nursing staff and the consultants responsible for anaesthesia.

Organization and administration

The physical conditions under which ECT is given should be reviewed. Many hospitals could make improvements which would cost very little. In others, however, major changes are needed.

Procedures to cover all aspects of the work of the ECT clinic should be clearly defined and agreed within each hospital. In the absence of consultant direction otherwise, ECT should be given according to a pattern agreed in the hospital. This would avoid haphazard practices, and should at least specify the type of stimulus (waveform), placement of the electrodes, and what to do if the first stimulus does not evoke a seizure. Simple diagrams, showing the agreed placement of electrodes for unilateral and bilateral ECT, should be in clear view in the clinic.

The time of day when ECT is given should be reviewed; the clinic should start as early as possible so that patients do not have a long waiting time without food or drink. Each clinic should keep a register of every patient who attends for ECT: name, identifying information, dates of attendance, numbers of ECT in this and previous courses, difficulties and complications. This is necessary for the safety of the procedure, for statistical purposes and to deal with any queries which may arise later, possibly long after the termination of a course of treatment. For each patient there should also be a separate record, in a card index or similar filing system, with details of each treatment: anaesthetic and relaxant dosage, electrode position, stimulus, effect, whether 'missed fit' or repeated stimulus needed. In addition, the full case notes should be available in the ECT clinic. Both a written account of ECT and a verbal explanation should be given to patients and, where appropriate, to their relatives.

The anaesthetist should, if possible, be a regular member of the ECT team. He should be given concise written information about the obligatory physical

examination, investigations, drugs, and known sensitivities.

Some clinics could change practices which persist from habit rather than need: making patients wear night attire or theatre gowns; the insertion of a rubber 'bite' before anaesthesia is induced; restraint, manual or by sheet, during treatment; unnecessary movement of unconscious patients. In many clinics there is insufficient appreciation of patients' needs to be treated quietly, unhurriedly, with kindness and respect and, as far as possible, in privacy. There should be few people in the treatment room and no unguarded chatter.

Equipment

Those models of ECT machine which have been superseded should not be used since they are often electrically unsafe and do not conform to the 1976 Safety Standards. These machines should be replaced. The only British machines known to conform to the new British Standard 5724 Part 1 (1979) are the Ectron Constant Current Apparatus and Series 4 machines bought after April 1st 1981.

Sturdy individually held electrodes, Theratronics or Ectron (new pattern), are suitable for unilateral and bilateral treatment. The more commonly used Ectron bilateral headsets are very frequently held incorrectly leading to poor contact and 'missed fits', while the Y-shaped unilateral headsets less easily to provide firm pressure. Preparation of the scalp requires more care than is usually given; it should be free of grease and hair lacquer before the headset is firmly placed.

Clinical decisions

Although ECT is not "a hazardous, irreversible or not fully established" treatment (Review of the Mental Health Act 1959 (1978)), its prescription is a matter for considered judgment and should not be left to inexperienced or junior staff.

The treatment should not be given in courses of fixed length. The individual patient's progress should be subject to review and the number of treatments determined by this. Maintenance ECT should be used, if at all, only with the safeguard of frequent reviews.

The parieto-temporal placement for unilateral ECT (Lancaster (1958) position) is used by a majority of respondents who give unilateral ECT, and is probably satisfactory. Each hospital should agree a policy for the use of unilateral ECT, eg routine unilateral ECT unless the consultant orders otherwise. Consideration should also be given to agreeing procedures for the administration of atropine within each clinic. Oxygen should be used in all cases, both before the stimulus is applied and afterwards, until normal breathing is re-established.

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