

ECT custom and practice*

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The 50th anniversary of the first ECT provides an opportunity to look back and reconsider whether we are using this important treatment as well as we might.

In 1979, with Les Ellam, and having just retired as a general psychiatrist, I had the privilege of carrying out the College survey of ECT in Britain; our report to the College¹ was published in 1981. It is nine years since I had clinical responsibility for patients or for prescribing or administering ECT so that, as during the two survey years, I have been an observer of the scene and sometimes, when asked, an adviser. My involvement since 1981 has necessarily been limited but I have kept in touch through visits with the Health Advisory Service and as a Mental Health Act commissioner and second opinion appointed doctor. I have also had time to reflect on and repent some of my sins of ignorance, omission and commission as a clinician.

I wish that there could have been a properly researched follow-up report but sadly the College requests for funding were repeatedly turned down by the DHSS; eventually the ECT subcommittee of the College Research Committee reluctantly agreed that it was too late for a follow-up to demonstrate what changes in practice, if any, were the direct result of the survey and what could be attributed to other social factors, changes in the NHS and the introduction of the Mental Health Act in 1983.

Forty years ago, when I first gave unmodified ECT as a registrar and the treatment was comparatively new, it was sometimes used with excessive zeal but the main principles on which it was given were well established. In 1947, a statement on 'Shock Therapy'² which could, in large part, have been issued 30 years later, drew attention, among other things, to the emotions aroused by ECT, the training of those administering it and how it should be controlled; these are still important issues.

When a treatment has been in use for a long time, it is inevitable that there will have developed customs and habits, of belief and practice, which are no longer critically questioned by most practitioners. I would certainly have included myself among them. Some of these habits continue to be true guides; others need to be changed in the light of more recent findings. The difficulty, of course, is to distinguish those which have rightly stood the test of time.

*Based on a paper given at the Annual Meeting of the College, 5 July 1988.

We knew from clinical experience 49 years ago that ECT was the most powerful antidepressant agent available, and this remains true today, notwithstanding great advances in pharmacological treatment. It was also invaluable in some other states, notably acute mania and some schizophrenic illnesses, although it is only recently that controlled research has confirmed this. I shall deal with only some of the ideas and practices which should be changed, but there are others, such as the routine use of atropine and the concomitant use of certain drugs, especially benzodiazepines.

Cognitive impairment after ECT, especially patchy memory deficits, was being reported in the 1940s, but most clinicians and patients do not seem to have been unduly worried by this. ECT has acute effects on many intellectual functions which when severe amount to an organic brain syndrome. These clear up in a matter of weeks and appear to be closely related to *how* the seizure is elicited, e.g. sinewave bilateral placement of electrodes and high intensity stimuli are associated with more disturbance than are pulsed, nondominant, low intensity stimuli. More persistent deficits, particularly patchy amnesia for events both before and after the course of ECT, resemble the deficits found in patients who have spontaneous or chemically induced seizures, and are probably related to the seizures and not to the method of eliciting them. A third factor in the persisting complaints made by a small number of patients is that the experience of having ECT may alter their perception of their cognitive functioning.

Many research studies appeared to show that unilateral nondominant ECT was clinically as effective as bilateral ECT but without the obvious interference with cognitive functions; there was strong pressure on clinicians to adopt unilateral placements as routine. As the survey showed, most clinicians resisted these pressures, 80% of ECT being given bilaterally. This was probably in part because of established habit, but many were convinced by their own experience that unilateral ECT did not work so well. The reasons why they were right and those who advised it, including me in 1981, were wrong, are complex but beginning to be understood.

After Ottosson's (1960) work,³ which among other findings related short-term cognitive impairment to the amount of electrical energy used, it was generally accepted that the aim should be to use the smallest amount of electricity needed to induce a

generalised seizure. The NIMH Consensus Development Conference on ECT⁴ in 1985 repeated this recommendation, with the addition that it should be an 'adequate' seizure, but without defining what is adequate; and herein lies the difficulty. From the early days of ECT it had been accepted that the crucial event is the occurrence of a bilateral clonic seizure, and that the amount of electricity used was unimportant. *This is now known to be untrue* but the false belief still influences practice. Partly because of it, most ECT ever given has been administered with simple apparatus which has not differed in principle from that devised by Bini for the first ECT; this delivered a 50–60 cycle per second alternating current from the secondary coil of a simple transformer. The voltage could be varied up to a maximum of 150v and the time set for up to about one second; in practice, these maximum settings tended to be used routinely. The apparatus most in use in the UK in the 1950s into the 1970s lacked the means of altering the voltage, and even the timing was dependent on how long the operator kept his finger on the button. At the time of the survey in 1980, 20% of clinics visited were still solely dependent on such equipment. The DHSS set up a working party to advise on ECT equipment and as a result much of the obsolete and unsatisfactory apparatus was replaced within a year by the recently introduced constant current, brief pulse equipment giving a train of high voltage pulses, considered to be a more satisfactory physiological stimulus. Clinicians soon began to complain that with this equipment their patients did not get better, especially if unilateral ECT was used, even though they appeared to be having adequate seizures. Research has demolished the old belief that all generalised clonic seizures are the same. In one trial⁵ when treatment was administered with a stimulus just above the threshold level needed to induce a seizure, 70% of patients given bilateral ECT were considered treatment responsive compared with only 28% of those who had unilateral ECT. Evidently the stimulus needs to be above threshold but it is not yet known how much higher it should be, or how to set the level ideally; it is certain that the first ECTRON constant current apparatus could not deliver a stimulus sufficiently above threshold to ensure that all patients would receive an adequate seizure.

There are wide differences in the stimuli delivered by different ECT apparatus and the large number of possible variables makes comparison difficult. The original sinewave equipments delivered to a patient of average resistance about 500 millicoulombs in one second. The latest ECTRON series 5 constant current apparatus, which appears to be clinically very satisfactory, delivers an average effective stimulus of about 275 mC over 3.25 seconds. The stimulus intensity (i.e. mC/second) is therefore only about 1/6 that of the sinewave stimulus. It seems likely that the high

intensity of the sinewave stimulus was well above the threshold in nearly all patients so that almost all of them would have had maximum seizures. This would have prevented earlier recognition that fits are not 'all-or-nothing'.

Although unilateral ECT with low intensity pulse stimuli causes much less cognitive impairment in the short-term than bilateral ECT, it is less effective. For most patients, bilateral ECT with constant current equipment will give satisfactory clinical results with minimal cognitive impairment; this is the pattern of stimulation advocated in a new College paper, 'The Practical Administration of ECT'.⁶

The implication of all this is that it is not enough to be able to record that a patient has had a course of ECT with generalised seizures lasting more than 25 seconds (do you time them? shorter seizures are unlikely to be effective); there should be careful assessment after each treatment, and if the expected improvement is not observed you should be asking why, and consider whether the stimulus should not be increased at subsequent ECT sessions. Therapeutically ineffective seizures can look the same and last as long as those that work. Scott⁷ has observed ECT technique in a well-run clinic where the doctors are taught about ECT and have written instructions about what to do if stimulation induces too short a fit; and where the nursing staff are experienced. The detailed ECT charts are rarely looked at by consultants responsible for treatment and rarely is any variation made to the length or intensity of stimulus. My impression is that such neglect of important information and inflexible technique is so common that I would be pleasantly surprised to find a hospital where this was not so.

The administration of ECT, being in principle simple, has generally been considered to require little skill or training and so has usually been left to a rota of SHOs and registrars who will often have neither. Older psychiatrists may look back to a time when it was more usual than it is now for the doctors responsible for a patient's treatment to administer the ECT themselves and to decide, immediately before each treatment, whether the ECT would be given that day or not. Today, consultants often feel out of touch with new apparatus, use it too rarely, if at all, to be skillful with it, and in any case feel that they are too busy with other things to attend to the ECT personally. I believe that thereby we and our patients have lost an important part of the treatment and that some patients may not be getting ECT even when everyone on the team thinks that they are. At the very least, a consultant who has been entrusted with responsibility for an ECT clinic, in line with recommendations made when the main survey report was published,⁸ should take a very active interest in the work of the clinic and in the training of the doctors. The new College paper supports these

recommendations and provides a great deal of practical information to help those involved in the treatment. I have noticed marked differences between those hospitals which have an interested ECT consultant and those who have not. In the latter, junior doctors have told me that they get no training and their ignorance of ECT is obvious; not surprisingly they feel antipathetic towards it. Sometimes after initial enthusiasm consultants fail to continue training programmes; within a few months skilled junior staff have moved on and the quality of treatment deteriorates.

I fear that without constant vigilance by the consultants there will be a drift back to the unacceptable state to which so many clinics had sunk in 1980. As one consultant told me then, of a particularly unsatisfactory clinic, "I am afraid we set the clinic up four years ago and none of us has looked at it since".

It is obviously impossible for the College in London to keep an eye on all ECT and it should not be necessary. In 1982 the College Special Committee on ECT suggested that in each College Division there should be one or two consultants who would act as Divisional Advisers on ECT and take an active interest in all clinics in their Division. This idea was rejected by the Divisions who, understandably, thought it a matter for the hospitals themselves. So, of course, it is; but every doctor who prescribes ECT should know and be satisfied with what is being done. It is not enough just to trust and hope that somebody else is keeping standards up and teaching those who administer ECT for them.

I am sure that there is a significant minority of patients who are too readily accepted as unresponsive to ECT because consultants fail to recognise that the technique of administration may be faulty and because they do not even look at what records are kept of the treatment.

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