

## Electro-convulsive Therapy: A Few Lingered Thoughts/Doubts!

Electro-convulsive therapy (ECT) was introduced in 1938 and has been in continuous use since then as a tool for therapeutic neuromodulation in the treatment of various psychiatric disorders. ECT celebrates its 74th birthday this year and is neither tired nor retired as a treatment modality. It remains an important component in the armamentarium of biological therapeutic tools in psychiatry. ECT remains invaluable, and can be termed life saving, in the management of patients with acute suicidal risk, severely retarded depression, catatonia, etc.

ECT differs from psychopharmacology in several clinically relevant aspects: action on electrical depolarization and not at receptors at synapses, independent of renal clearance, hepatic metabolism, compliance of patient, drug interactions, etc.<sup>[1]</sup> As of today there is no single unifying explanation how ECT works so well in a variety of conditions.

Since its introduction in 1938 there were several advances in the practice of ECT with introduction of modified ECT, brief pulse and ultrabrief pulse current, unilateral electrode placement, seizure threshold titration, etc. with the goal to increase efficacy and minimize the risk, special focus being on minimizing cognitive side effects. Risk of death with ECT is relatively low at 1 in 10,000 patients. At Asha hospital, Hyderabad, about 30,000 patients received ECT in the last 8 years, mostly modified, without any mortality (oral communication). Amnesia, both anterograde and retrograde, remains a significant troublesome side effect. Generally it is transient but some reports comment on many patients having incomplete recovery in retrograde amnesia.<sup>[2]</sup> The reasonable safety of unmodified ECT has been well described.<sup>[3-7]</sup> The safety profile of ECT remains neighbors's (other biological treatments) envy. Scalia *et al.*<sup>[8]</sup> reported the case of a 92-year-old woman

who had received 91 ECTs in her lifetime and showed no pathological effects at postmortem examination of her brain when she died of other causes. Dwork *et al.*<sup>[9]</sup> reported no evidence of any significant neuropathological lesions in nonhuman primates after receiving multiple ECTs.

Broadly ECT can be categorized based on the phase of treatment:

1. Acute (phase) ECT – till response/remission
2. Continuation (phase) ECT (C – ECT) – few weeks/months after remission to prevent relapse
3. Maintenance (phase) ECT (M – ECT) – few months or longer to prevent recurrence

ECT is used in the management of depression and every psychotic disorder in psychiatry, though depression remains the most common indication. The Consortium for research in ECT (CORE) reported a 75% remission in depression<sup>[10]</sup> which is supported by the UK ECT Review group.<sup>[11]</sup> Patients with psychotic subtype of depression respond much higher.<sup>[12]</sup> But there are reports that success rates in community hospital settings have been less at 30-45% as reported by Prudic *et al.*<sup>[13]</sup> There was another report by Sackeim *et al.*<sup>[14]</sup> that documented remission rates in depression with ECT at 54%. Another interesting component of this study was that without any form of maintenance treatment 84% of patients relapsed at the end of 6-month follow-up. The CORE group also reported 46% relapse at the end of 6 months. One of their recommendations underscores the need to “treat to wellness” and not prematurely terminate the acute course of ECT. The clinical utility of continuation ECT and maintenance ECT was well discussed by Andrade *et al.*<sup>[15]</sup> and Kellner *et al.*<sup>[16]</sup>

Most guidelines recommend ECT only for resistant depression and at a much later stage in the treatment process. The National Institute for Clinical Excellence (NICE) guidelines recommend restriction of ECT only for patients with severe depression and state that ECT is not recommended as maintenance therapy.<sup>[17]</sup>

ECT is underutilized as a treatment modality by some psychiatrists, at some institutions and in some geographical locations of the world. Similarly with some psychiatrists, at some institutions and in some

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geographical locations, ECT is an overused, rather abused, treatment modality. Each group has its own rationalizations and justifications.

The Grand Old Lady of the biological treatments in psychiatry stood the test of time for three quarters of a century and is going strong, a standing testimonial to its therapeutic benefits.

“In all affairs it is a healthy thing now and then to hang a question mark on the things you have long taken for granted.”

After having said so a few lingering thoughts/doubts cross my mind, which I thought, I will share with you all:

1. After introduction of ECT as a treatment modality for depression whether there is any decreased risk of suicide among patients with depression! There is published data that indicate reduction in suicide rates after usage of SSRI.<sup>[18]</sup>
2. Is there any increased risk of suicide, in the immediate period, after administration of ECT, similar to reports of increased suicidality with antidepressants? ECT is generally indicated in retarded, suicidal patients and it is the retardation component, which improves earlier.
3. Acute (phase) ECT is given 2-3 times a week. What is the prescribed guideline for continuation/maintenance ECT? At what frequency and for how long?
4. Is ECT used as monotherapy or only as an adjunct to pharmacotherapy in the management of Major Depressive Disorder (MDD)! Complete management of MDD includes five phases – 1. Response, 2. Remission, 3. Relapse prevention, 4. Recovery, 5. Recurrence prevention and extends for a period of about 9–12 months. The beneficial effect of ECT will be acute ECT in phases 1 and 2, continuation ECT in phases 3 and 4, and maintenance ECT in phases 4 and 5. At least in India, most likely in most other countries, C-ECT and M-ECT are administered extremely rarely, if at all. Without the component of M-ECT the modality of convulsive therapy is incomplete and can only remain an adjunct to antidepressants!
5. NICE guidelines restrict use of ECT only for severe/resistant depression and also do not recommend M-ECT. Definition of resistant depression includes no or not satisfactory response to multiple antidepressant treatment trials either as mono/polypharmacy. After satisfactory treatment of resistant depression with ECT (acute phase) what can be the rationale in maintenance pharmacotherapy with antidepressant medication, which proved otherwise useless in the acute phase?
6. MDD includes a very heterogeneous group of patients with depressive symptoms. Leaving aside psychotic, melancholia, and recurrent depression subgroups how effective is ECT in the management of MDD? This question becomes more relevant in the current context of:
  - a. Recent controversies regarding the unsatisfactory benefit with antidepressant medication in bipolar depression (Systematic Treatment Enhancement Programme – Bipolar Disorder (STEP-BD)) and in MDD (Sequenced Treatment Alternatives to Relieve Depression (STAR-D))
  - b. Reemergence of the concept; neurotic depression constituting a significant percentage of patients with MDD.<sup>[19]</sup>
7. ECT as Mood Stabiliser (MS) in Bipolar Disorders (BD): It is an established fact that the bipolar patient spends three times more duration in depressive phase than in the manic phase. ECT is effective in acute management of depression and also in acute management of Mania. We all, practicing psychiatrists, have reasonable chunk of very difficult BD patients with significant suicidal risk, social and vocational disruptions with frequent episodes. Should maintenance ECT be given a chance to prove its worth in mood stabilization and if not what could be the valid reason? Does any guideline include M-ECT as one of the options as mood stabilizer? Many may argue that there is no evidence. Let me remind that absence of evidence is not evidence of absence of effect and scientific temperament demands some extrapolation of data and testing of hypothesis.
8. What are the short- and long-term effects of ECT in children where the process of neuronal demyelination is not complete and also the effect of ECT on the neuronal circuits in the light of recent evidence on Neuroplasticity?

If an young/old scientist takes up any “doubt” as a research project, I salute him. If somebody leaves it as the ramblings of another “Doubting Thomas,” I will not be unhappy with him.

Truth is the goal at which the gradual process of corrected error aims.

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