

Book Review

Electroconvulsive and Neuro-modulation Therapies

Edited by Conrad M Swartz

Review by: Mamdouh EL-Adl^{1*} & Sameh Hassan²

This book was first published by Cambridge University Press in 2009 and edited by Conrad Swartz, MD, PhD who is an Affiliate Associate Professor, Department of Psychiatry, Oregon Health and Science University and Professor Emeritus, Department of Psychiatry, Southern Illinois University. Its ISBN 978-0-521-88388-7 with hard cover and its price is £ 50.00

A total of **52 Scholars** and clinicians contributed to this book's with its **609 pages, 4 parts** and **38 chapters**.

This is a reference on Electroconvulsive and Neuro-modulation Therapies that provides a comprehensive cover to the scientific basis and clinical practice of ECT as well as comparisons between ECT and medication therapies including the new generation of antipsychotic drugs. It also provides the readers of with administrative perspectives and specific details for the management of this modality in clinical practice. The new forms of non-convulsive electrical and magnetic stimulation therapy are also covered in detail. The chapters' authors are leading scholars and clinicians.

Part I (chapters 1–8): Scientific and experimental basis of electroconvulsive therapy.

Chapter 1: Electricity and electroconvulsive therapy authored by Conrad M Swartz. He addressed basic electrical facts and safety, seizure generation, brief-pulse stimulus dose, sine wave stimulus dose and stimulus efficiency. He also compares sine wave versus brief-pulse stimuli and discusses efficiency of brief-pulse stimuli and ultrabrief pulse.

Chapter 2: Nonelectrical convulsive therapies by Nial McCare. He reviewed nonelectrical convulsive therapy (non-ECT) procedures including pentylenetetrazol (PTZ) and cyclohexylethyltriazol, flurothyl inhalation and insulin coma therapy, which have epileptogenic effects. **Chapter 3:** Neurochemical effects of electrically induced seizures: Relevance to the antidepressant mechanism of electroconvulsive therapy

authored by Renana Eitan, Gail Ladshut and Bernard Lerer who discussed the mechanisms of action of ECT. They discussed the effect of ECT on different neurochemical pathways including the serotonergic, noradrenergic, dopaminergic pathway, and GABA pathways as well as the glutamatergic systems. They discussed the effect of ECT on neuropeptides, gene transcription and neurotrophic factors. They also discussed the effect of ECT on synaptic plasticity and neurogenesis which has recently been the focus of a great deal of interest. Some other factors which include environmental, physiologic and pathologic variables that influence neurogenesis were also covered.

Chapter 4: Hypothesized mechanisms and sites of action of electroconvulsive therapy by Nikolaus Michael who postulated that any theory of ECT mechanism of action is hypothetical. **Chapter 5:** Brain imaging and electroconvulsive therapy by Kathy Peng and Hal Blumenfeld. Neuroimaging has greatly enhanced our understanding of what

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ECT does to the brain, how it may treat depression and the mechanism by which it causes cognitive side effects. **Chapter 6:** Evidence for electroconvulsive therapy efficacy in mood disorders by Keith G Rasmussen. **Chapter 7:** Clinical evidence for the efficacy of electroconvulsive therapy in the treatment of catatonia and psychosis by Gabor Gazdag, Stephan C Mann, Gabor S Ungvari and Stanley N. Caroff. **Chapter 8:** Hormonal effects of electroconvulsive therapy by Conrad M Swartz. Conrad states that ideally hormone testing should help assess the adequacy of the ECT course for individual patients and those prescribed maintenance ECT in order to determine if the frequency of treatment is adequate. This seems to be based on resting cortisol levels and ECT-induced cortisol release after pretreatment with 1.5–2mg of dexamethasone at least 8 hours prior. Perhaps 1 mg dexamethasone can be used if nonbarbiturate ECT anaesthesia (e.g. etomidate) is given. Adequacy of single ECT treatments can be measured by Benchmark Method.

Part II (Chapter 9–12): Historical, societal and geographic perspectives. **Chapter 9:** History of electroconvulsive therapy by Edward Shorter. **Chapter 10:** Electroconvulsive therapy in biographical books and movies by Andrew Mc Donald and Garry Walter. **Chapter 11:** Professional barriers to providing electroconvulsive therapy authored by William H. Reid. **Chapter 12:** Legislation that regulates, limits or bans electroconvulsive therapy by Alan R. Felthous. **Abou Saleh & Christodoulou** have published an important statement in the Arab Journal of Psychiatry vol.20 (1) May 2009 about the WPA position statement on the ethics of the use of unmodified ECT. Unfortunately unmodified ECT is still used in many developing countries. It is highly important that the **Arab Federation of Psychiatry** together with the **National Psychiatric Associations** in every Arab state do every effort to put an end to the use of unmodified ECT in the Arab World.

Part III (chapters 13–18): International perspectives. **Chapter 13:** Electroconvulsive therapy availability in the United States by Michelle Magid and Barbara M Rohland who noted concerns raised about the patterns of ECT use in USA including regional, socioeconomic and demographic factors related to its utilization. **Chapter 14:** Electroconvulsive therapy in Scandinavia and the United Kingdom by Susan Mary Benbow and Tom G. Bolwig. This chapters examines the history and present state of ECT therapy practice in Scandinavia and the UK, considers recent changes and looks to the future of treatment provision. **Chapter 15:** Electroconvulsive therapy in continental Western Europe: A literature review by pascal Sienaert and Walter W. van den Broek. **Chapter 16:** Electroconvulsive therapy in Asia by Sidney S Chang who noted that ECT use rates are much lower in Asia than in Western countries (Approximately 5–10/100,000 persons/year compared with 20–40/ 100,000 persons/year respectively) which I found very interesting. **Chapter 17:** history of electroconvulsive therapy in the Russian Federation by Alexander I. Nelson and Nataliya Giagou who noted that USSR was one of the first countries to adopt ECT as a therapeutic option. **Chapter 18:** Electroconvulsive therapy in Latin America by Moacyr Alexandro Rosa and Maria Odebrecht Rosa state that no accurate figures about the use of ECT in Latin America. However in 2002 the

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Federal Medical Council issued a decree prohibiting ECT without general anaesthesia and muscle relaxation.

Part IV (Chapters 19–21): Administrative perspectives. **Chapter 19:** Electroconvulsive therapy hospital policy and quality assurance by Barry Alan Kramer; **Chapter 20:** Staff management and physical layout for electroconvulsive therapy by Jerry Lewis and **chapter 21:** Electroconvulsive therapy forms authored by Jerry Lewis. The three chapters focus on hospital policy, staff and forms.

Part V (Chapter 22–34): The clinical manual. **Chapter 22:** Patient selection and electroconvulsive therapy indications by Conrad M. Swartz who reviews the American Psychiatric Association (APA) Task Force Report on ECT (APA, 2001). The latter did not limit the use of ECT within the group of patients who are diagnosed with major depression. **Chapter 23:** Electroconvulsive therapy or antipsychotic drugs (or benzodiazepines for catatonia) by Conrad M Swartz. **Chapter 24:** Informed consent by Peter B. Rosenquist who discussed the definition of informed consent and its historical development, competency and obstacles to informed consent with a competent patient. It is very important for psychiatrists in the Arab World to pay special care to taking patient's valid consent and develop a legal framework to address the patients who are unable to give a valid consent. **Chapter 25:** Electroconvulsive therapy in the medically ill authored by Keith G. Rasmussen and Paul S. Mueller. **Chapter 26:** Anaesthesia for electroconvulsive therapy by Charles H. Kellner, Dongehen Li and Limore Maron. **Chapter 27:** Stimulus electrode placement by Conra M Swartz who describes different electrode placements in bilateral and unilateral (left or right sided). **Chapter 28:** Stimulus dosing by W. Vaughn McCall who discusses important issues including the relationship between seizures induced by lidocaine-modified ECT were shorter than those induced by routine ECT and an inverse relationship between seizure duration and antidepressant effect. Stimulus dose producing seizures longer than 25–30 seconds had an antidepressant effect (American Psychiatric Association Task Force on Electroconvulsive Therapy, 1978). He also discussed the cognitive side effects and the stimulus dose and stimulus dosing in continuation/maintenance ECT which are very important. **Chapter 29:** Electroencephalogram monitoring and implications by Hideki Azuma which is a recent and useful technical development in more modern ECT machines. **Chapter 30:** Heart rate and electroconvulsive therapy by Conrad M Swartz and how peak heart rate reflects brain activity and function. **Chapter 31:** Cognitive side effects and psychological testing by James Stuart Lawson who states that subjective memory complaints can represent symptoms of dissatisfaction from an undertreated anxiety or personality disorders. He expects that advances in clinical ECT methods will further reduce cognitive effects while preserving efficacy. **Chapter 32:** Electroconvulsive therapy in children and adolescents by Garry Walter, Colleen Loo and Joseph m Rey. **Chapter 33:** Postelectroconvulsive therapy evaluation and prophylaxis by T.K. Birkenhäger and Walter W. van den Broek. **Chapter 34:** Ambulatory and maintenance electroconvulsive therapy by Charles H Kellner and Unnati D. Patel.

Part VI (Chapter 35–38): Neuromodulation treatment. **Chapter 35:** Transcranial magnetic stimulation (TMS) by Oded Rosenberg and Pinhas N. Dannon who discuss

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neurobiological background and uses of TMS particularly in depression. They compared TMS with ECT and discussed safety issues in TMS. **Chapter 36:** Vagus nerve stimulation (VNS): Indications, efficacy and methods by Shawn M McClintock, Kenneth Trevino and Mustafa M. Hussain who present VNS therapy as a new antidepressant modality. **Chapter 37:** Deep brain stimulation (DBS): Methods, indications, locations and efficacy by Thomas E. Schlöpfer and Bettina Heike Bewernick who highlighted the problems in target selection and speak about the use of DBS in depression and OCD. They also discussed ethical considerations and quality standards in DBS research. **Chapter 38:** Transcranial direct current stimulation by Julie A. Williams and Felipe Fregni who discuss mode of action, indications and adverse events.

This book is a very welcome addition to the reference library on ECT. On the international scale it did not seem to address the use of ECT in the Arab World or Africa. This may be due to lack of research and publication from both areas or lack of reliable reports and statistics. This should stimulate the new generations of Arab psychiatrists to rectify this. We should endeavour to present our experience in this field. I am calling upon the Arab Federation of Psychiatry to have a section or special interest group on ECT use, research and Ethics. Psychiatric Departments in Arabic Universities and the expertise among Arab Psychiatrists practicing in the West have an important role to play in this field for the best interest of our patients, profession and nations.

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