ECT in Children and Adolescents

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NACT

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NIMH (grant support)

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(honoraria for teaching ECT course)

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The Central European Journal of Medicine

On the significance of elektroconvulsive therapy in the treatment of severe mental diseases

Michael Grözinger · Elke Stefanie Smith · Andreas Conca

Received: 19 June 2014 / Accepted: 20 January 2015

Summary

Background Quite a few patients with severe mental diseases do not respond sufficiently to psychopharmacology as a last resort but in an evidence-based way. Patients should be informed timely and adequately about the therapeutic option

aspects.

Results Due to its excellent efficacy, ECT is an important option in the treatment of severe mental disease. Technological innovations and continued development in the psychiatric environment determined the evolution from the electroshock of the 1930s to the ECT of today. This process led to reduced side effects and a stronger patient-oriented praxis.

Conclusions ECT is a modern, highly effective and safe treatment of severe mental diseases with compara-

superior efficacy, ECT has remained an important treatment option for patients with severe psychiatric disorders. It can be easily combined with other treatment methods and should be applied within the frame of an overall treatment plan, which considers psychopharmacological, psychotherapeutic, socio-psychiatric, trialogical as well as juridical aspects. Despite positive scientific evidence, the therapy is often approached with reserve that cannot be explained rationally. With this article, we aim at providing a compact and practically oriented overview of ECT

"Despite positive scientific evidence, the therapy is often approached with reserve that cannot be explained rationally."

ECT in Britain: a Shameful State of Affairs

THE LANCET

ECT in Britain: a Shameful State of Affairs

LAST week the Royal College of Psychiatrists published what must be the most complete and thorough medical audit of a particular form of treatment that has ever been undertaken. As an account of the practice of therapy widely used by British psychiatrists, *Electroconvulsive Treatment in Great Britain, 1980*[1] is deeply disturbing.

The study, conducted by Dr J. PIPPARD and Dr J. ELLAM in 1979 and 1980, had four parts. First, letters were sent to all 3221 members of the Royal College of Psychiatrists, inquiring about their attitudes to and practice of ECT. Second, in a three-month prospective survey, both psychiatrists and hospitals were asked to keep a record of the ECT they actually used. The 614 randomly selected general practitioners were questioned about the effect of ECT on recently treated patients. Fourth—and the most revealing part of the study—the investigators visited one hundred ECT clinics and observed the circumstances and manner in which the treatment was given. PIPPARD and ELLAM estimate that in 1979 some 200 000 individual applications of ECT were given in 390 centres, all but 6 in National Health Service hospitals. Across the country there was a 17-fold difference between the rates of the highest and lowest users of ECT, measured by the number of treatments per annum per 1000 of the population at risk. The Oxfordshire region was consistently the lowest user and North Yorkshire the highest. Nearly all general psychiatrists prescribed ECT and 90–98% expressed generally favourable attitudes to the treatment.

Despite the fact that over twenty studies indicate that unilateral ECT causes less confusion and memory disturbance than bilateral ECT and is no less effective, 80% of ECT clinics rarely or never use it, preferring bilateral electrode placement as a routine. The most disturbing findings come from the series of inspection visits to ECT clinics. 28% of these clinics have an obsolete treatment machine and in 48% the reserve machine is obsolete. (The term obsolete was used of a machine which, though not necessarily unsafe, was no longer manufactured and did not conform to the 1976 electrical energy likely to produce an increase in side-effects such as memory disturbance without increasing therapeutic efficacy. 40% of clinics did not maintain their ECT machine regularly. It was rare to find a consultant psychiatrist involved in the work of an ECT clinic and most treatment was given by untrained or minimally trained junior doctors. 50% of junior staff had no or minimal training and 26% received some tuition but usually not until they had already given ECT several times. Even where a consultant was

satisfactory way, compared with 64% of nurses and 20% of anaesthetists. The picture painted is one of ECT been given in many clinics in a degrading and frightening way with little consideration for patients' feelings, by bored and uninterested staff, with obsolete machines operated by ignorant or uncaring psychia-

of good standards of care) with a special interest in ECT research. The views of patients elsewhere may be quite different. As yet they have not been systematically asked for.

The findings of the report were presented to the membership as a special one day meeting of the Royal College on the day of publication. Whether the packed audience was representative of British psychiatry as a whole is doubtful, but there did seem to be genuine concern and a desire to take urgent corrective action

administer and to ensure that a seizure occurs, but is still a simple, straightforward technique. Scandinavian psychiatrists, many of whom were present at the meeting because of a joint meeting with the Danish Psychiatric Society, use unilateral ECT almost exclusively, and American practice has also slowly shifted to the use of unilateral electrode placement.

emerge from this study with credit? a few clinics where ECT is given with ration by well trained staff. Secondly, pe of Psychiatrists is to be commended the study, which was supervised by its tree, and for making the results freely available. Thirdly, the two investigators must be congratulated. Theirs must have been a difficult task and the fact that such appalling practice was allowed to continue under their eyes says a lot for their investigative skills; nevertheless we must gloomily assume that, since the visits were announced in advance, the true picture is worse than that reported.

What are the implications of this report? The fact that the situation has not been uncovered before must raise doubts about the thoroughness and usefulness y has this body with not detected such anges have resulted. whole generation of ained in the theory r their consultants ubtful. ECT clinics requirements are a tate machine and recovery rooms. CT in the corner of ens. If extra money be taken from other proven value. The y other psychiatric Achilles' heel of ight think that, it nt have surrounded aken special care to roversial treatment not. If this is the British psychiatrists at must we surmise ich are less in the as gathered for this ty and anonymity, indings that under- RD and Dr ELLAM College must think o do about the mal- what action they should take to correct it. Both the Government and the Royal College have set up committees to study the findings but neither of these bodies will have access to details of the clinics themselves where presumably bad practice continues.

Every British psychiatrist should read this report and feel ashamed and worried about the state of British psychiatry. If ECT is ever legislated against or falls into disuse it will not be because it is an ineffective or dangerous treatment; it will be because psychiatrists have failed to supervise and monitor its use adequately. It is not ECT which has brought psychiatry into disrepute. Psychiatry has done just that for ECT.

Every British psychiatrist should read this report and feel ashamed and worried about the state of British psychiatry. If ECT is ever legislated against or falls into disuse it will not be because it is an ineffective or dangerous treatment; it will be because psychiatrists have failed to supervise and monitor its use adequately. It is not ECT which has brought psychiatry into disrepute. Psychiatry has done just that for ECT.

Scholarship in Electroconvulsive Therapy

- PubMed Citations (as of 5/21/16)

Search Term	# Citations
“ECT”	7,466
“Electroconvulsive therapy”	13,746
“Electroconvulsive”	14,960

Scholarship in Electroconvulsive Therapy for Children and Adolescents

- PubMed Citations (as of 5/21/16)

Search Term	# Citations
“ECT children adolescents”	180
“Electroconvulsive children adolescents”	262

FDA "Cleared Indications for Use" ECT Devices

1. Depression (unipolar and bipolar)
2. Schizophrenia
3. Bipolar manic (and mixed) states
4. Schizoaffective disorder
5. Schizophreniform disorder
6. Catatonia

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US FDA Proposed Guidance

427 *4.9.1.5 Precautions*

428 The following precautions should be provided.

429 • **Lack of Evidence for Efficacy or Safety in Specific Patient Populations.** Labeling
430 should include Precautions for the use of ECT devices in the treatment of patients
431 with psychiatric conditions where safety and efficacy has not been established. This
432 may include patients with:

433 - age less than 18

434 - schizophrenia

435 - schizophreniform disorder

436 - schizoaffective disorder

437 - biopolar mania or mixed states

438 • **Maintenance Treatment.** Labeling should include a precaution that describes the
439 limitations of available information on the safety and effectiveness of long-term
440 treatment with the ECT device, also known as maintenance ECT.

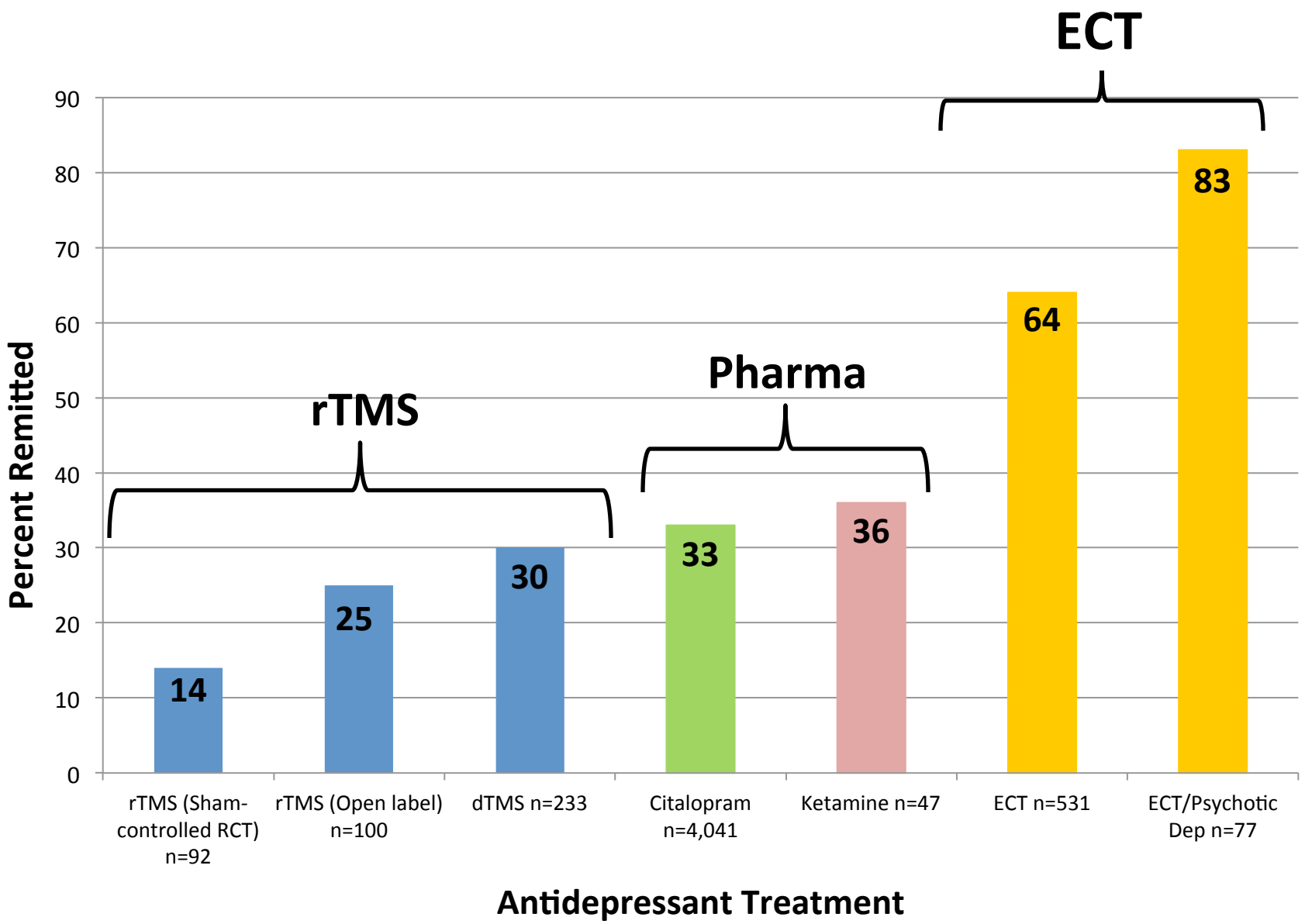
Electroconvulsive Therapy (ECT)

- *Weirdest* treatment in medicine
- Second most controversial treatment in medicine

ECT

- “Gold Standard” acute antidepressant and antipsychotic
- Unsurpassed efficacy and speed of response for serious mood and psychotic disorders

Antidepressant Treatment Remission Rates

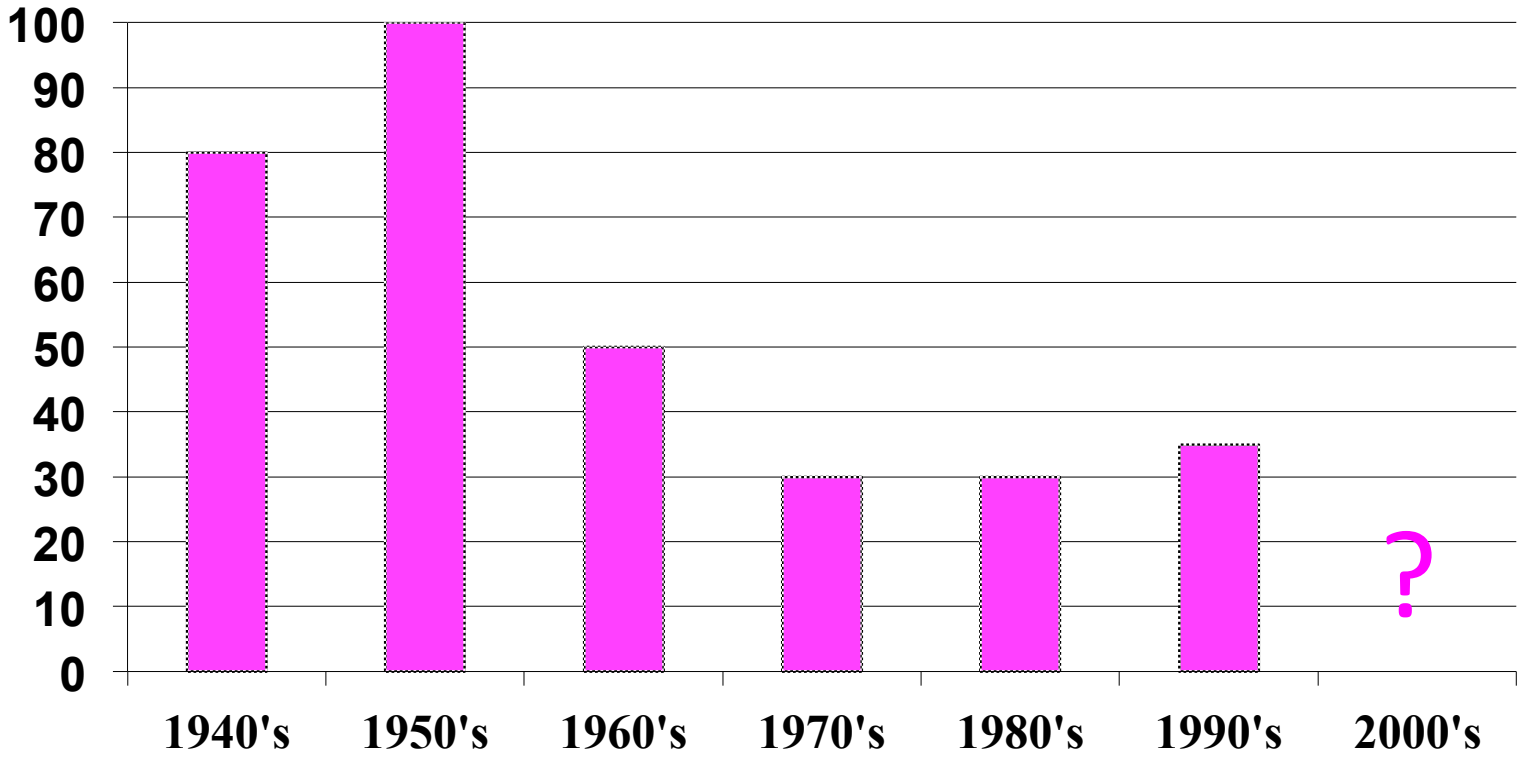


History of ECT

- Invented in Rome, 1938
- Originally performed without anesthesia ("unmodified")
- Since mid 1950's performed with full general anesthesia, muscle relaxation and oxygen
- Has remained a standard psychiatric treatment for seriously depressed patients
- Practiced in most countries around the world-"millions and millions served"

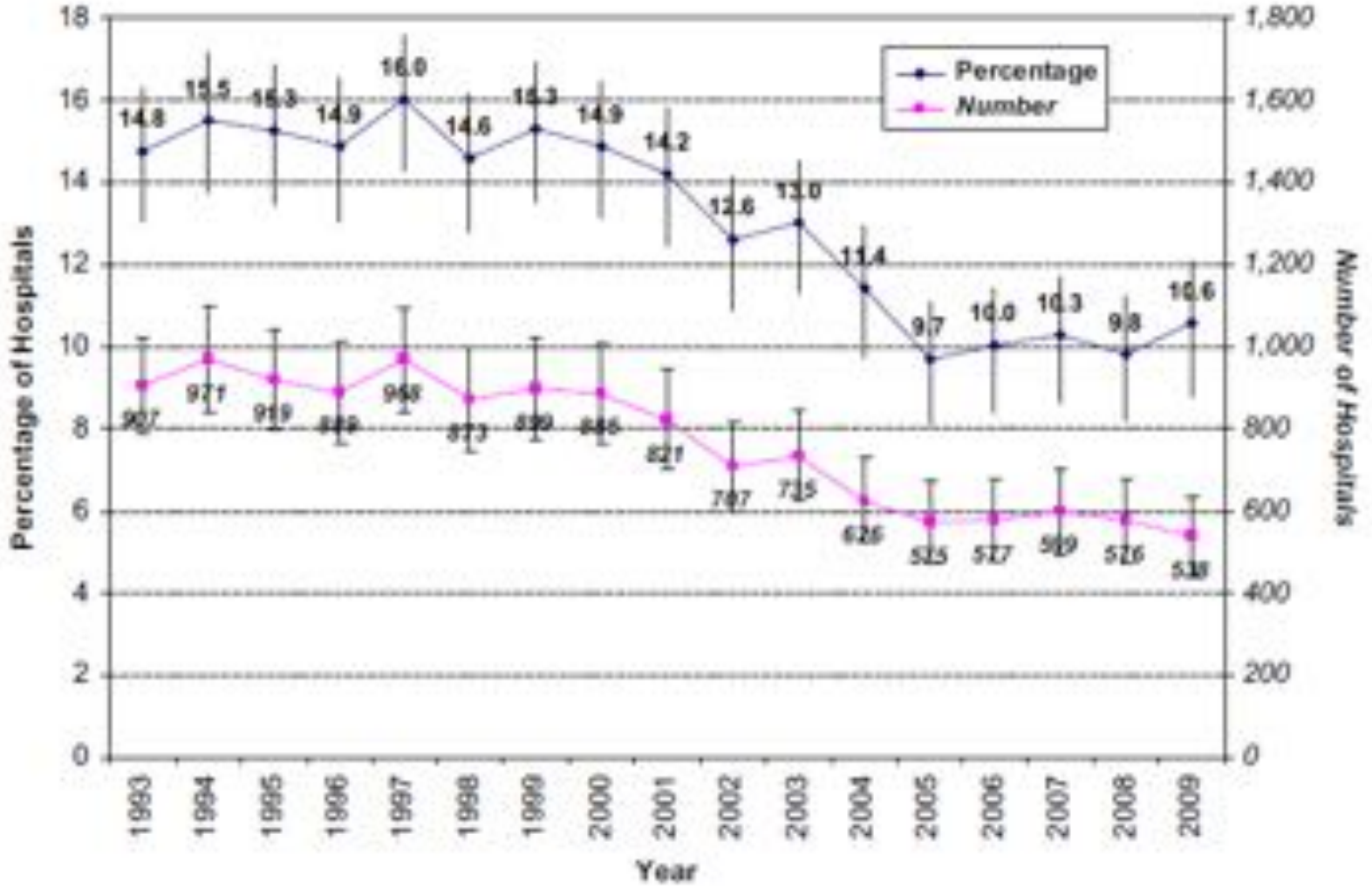
ECT Utilization in USA *(Rough Estimate)*

(% of peak historical use)



Used with permission from Richard Weiner, MD, PhD, 2016.

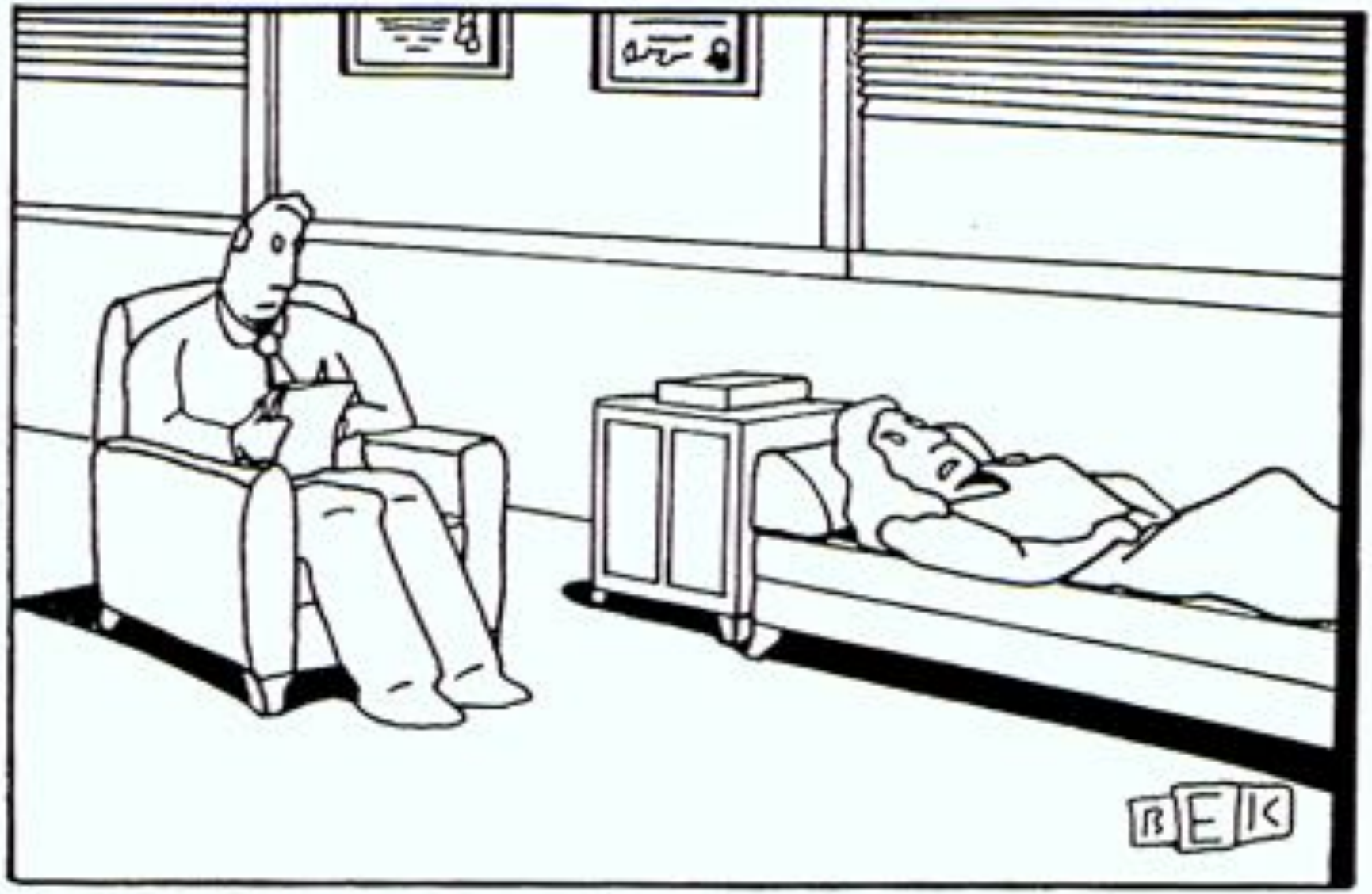
ECT in US General Hospitals



Case BG, et al.; Declining Use of Electroconvulsive Therapy in US General Hospitals. Biol Psychiatry. 2012 Oct. PMID: 23059049

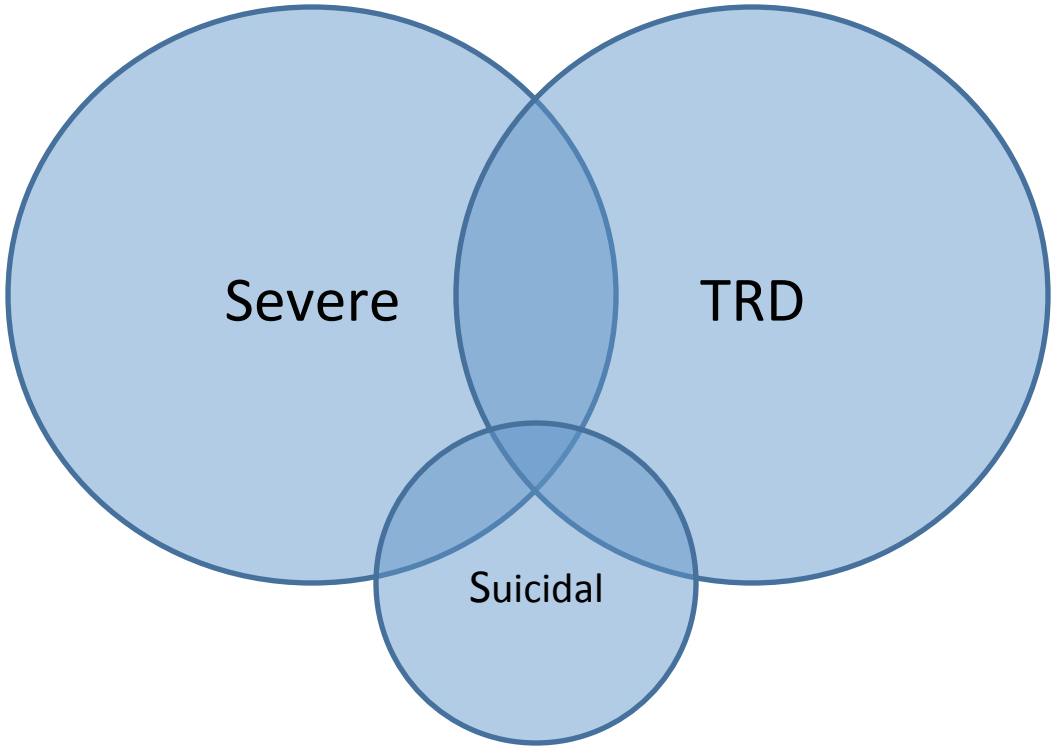
Who Receives ECT in USA?

- **Diagnosis**: mainly major depression, much less in catatonia, schizoaffective/schizophrenia d/o, mania *(other disorders only when comorbid to these)*
- **Gender**: follows diagnosis & population demographics
- **Race**: much more likely in caucasian
- **Age**: growing incidence in elderly, very little in adolescents, extremely little in children
- **Location**: most in general nonprofit hospitals (particularly academically affiliated), less in VA medical centers, and least in public facilities



"Well, I do have this recurring dream that one day I might see some results."

Severe Depression is **Not** Identical to TRD




The patient failed everything else, maybe it's time for ECT

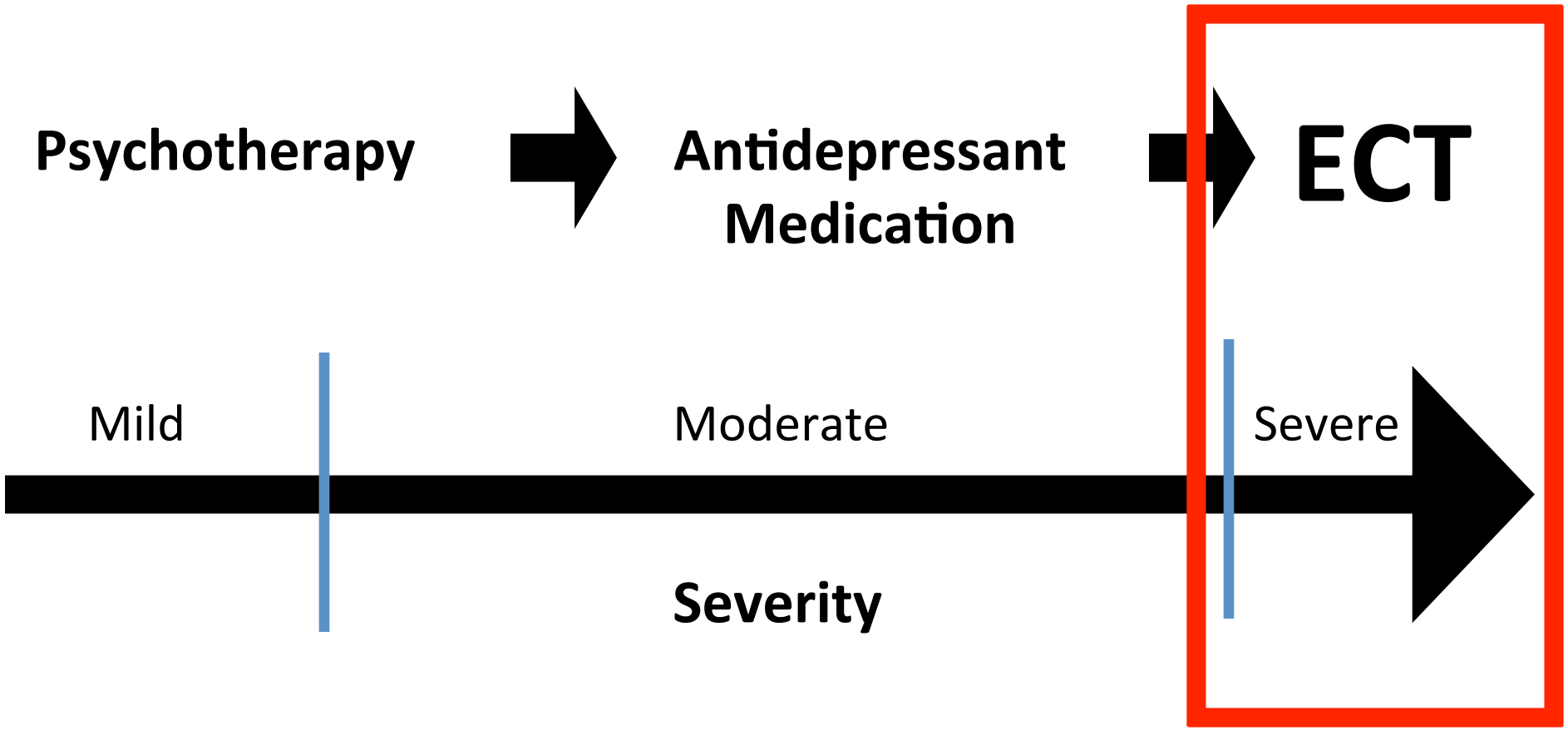
Gauging the "Integrity" of Axis I Depression

1. Severity

2. Family History

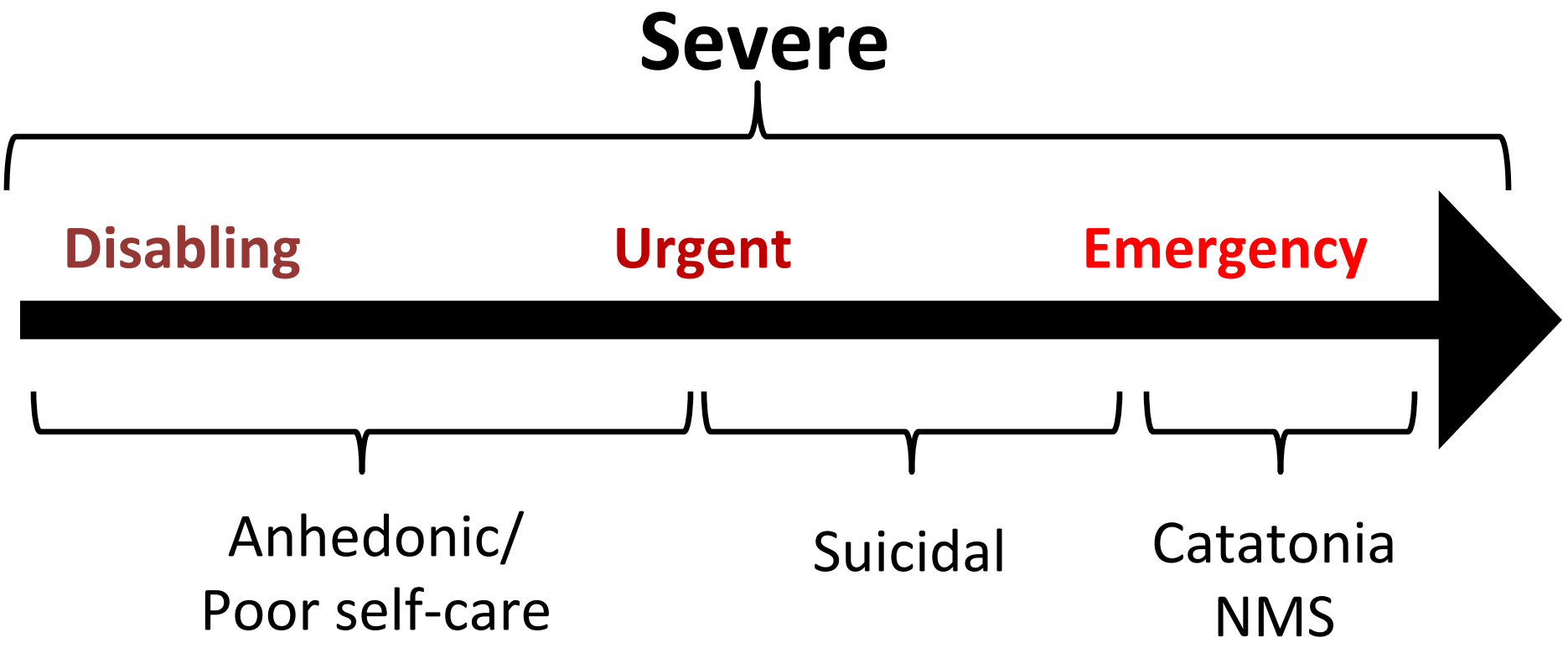
3. Episodicity

Treatments for Depression

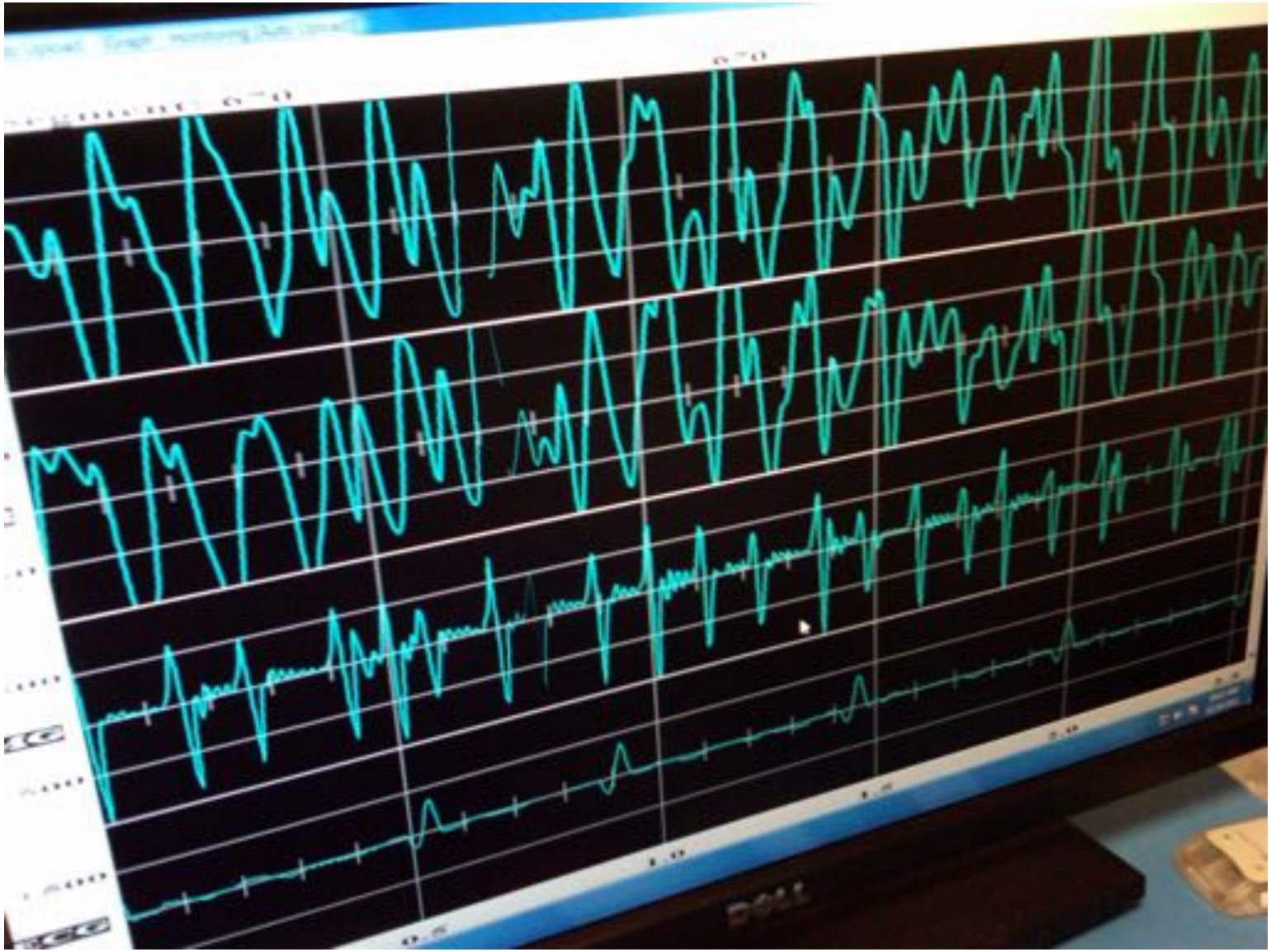


Treatments for Depression II

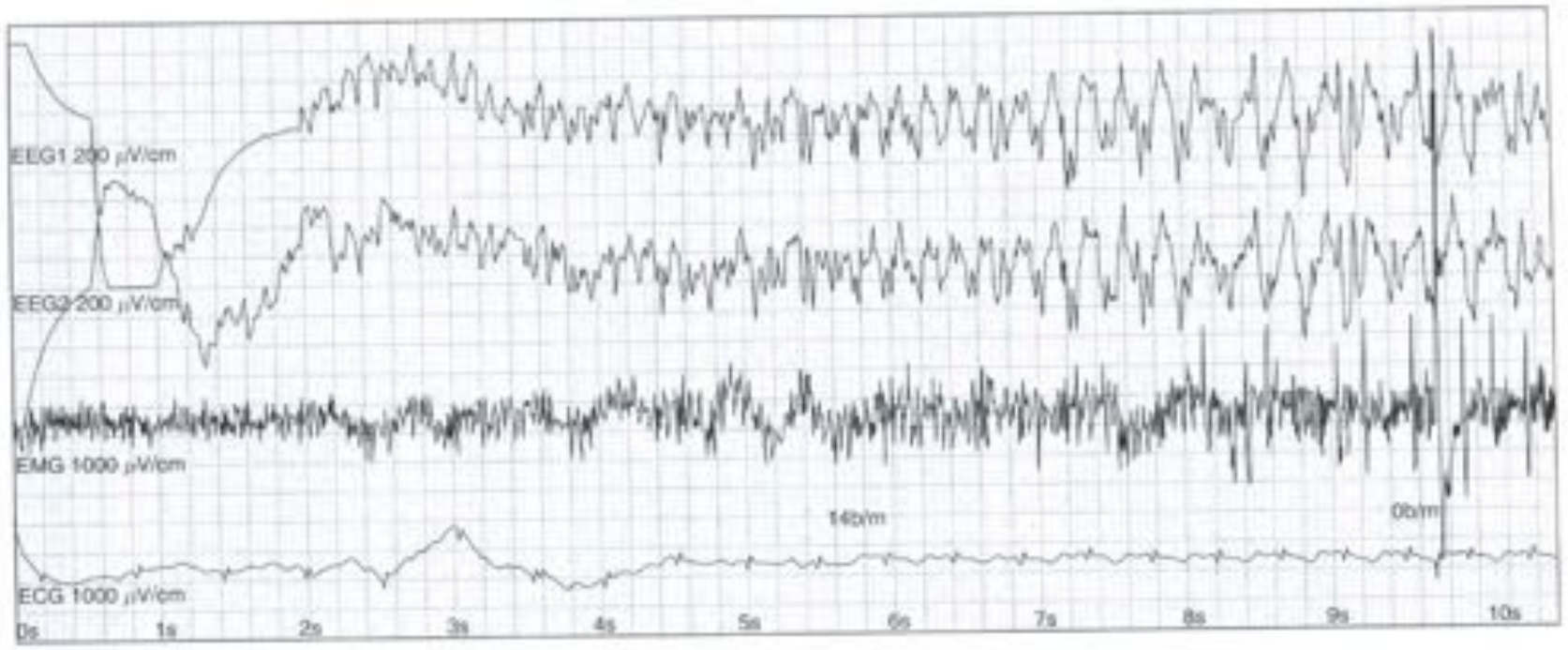
ECT



RUL Electrode Placement



Physiologic Monitoring During ECT
EEG (2 Channels), EMG, EKG

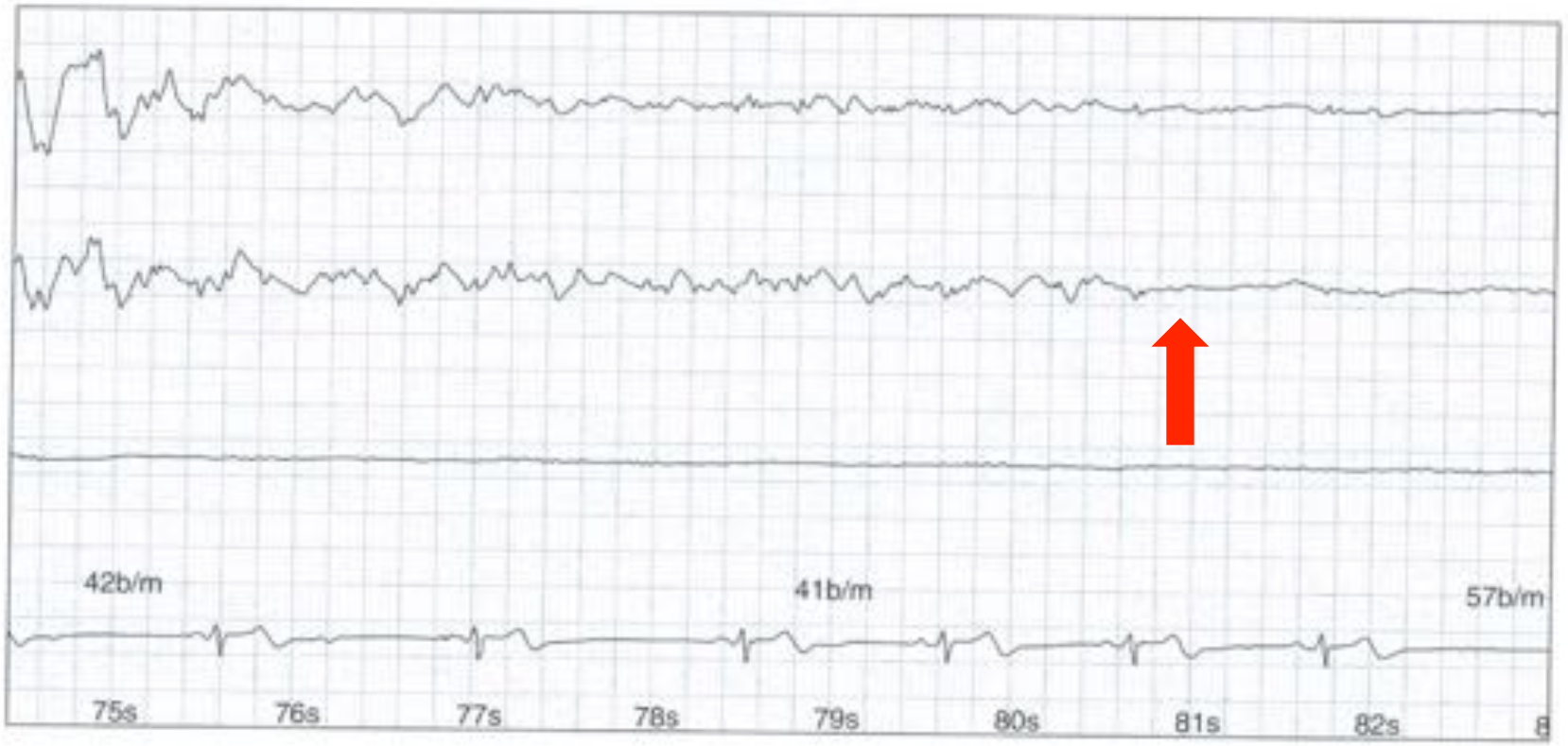


Seizure initiation.

Physiologic Monitoring During ECT
EEG (2 Channels), EMG, EKG

Well developed EEG seizure and end of the motor seizure.

Physiologic Monitoring During ECT
EEG (2 Channels), EMG, EKG



End of the EEG seizure.

Safety/Tolerability

- Safety = Risk of physical injury or death

- Tolerability = Side effect burden

ECT's Shortcomings

- Medical risks (safety)
  - risk of general anesthesia (death in 1/10,000)
- Cognitive effects (tolerability)
  - retrograde amnesia
- Does not prevent future episodes (unless use maintenance ECT)
- Post-ECT relapse rates higher in the modern era

ECT Adverse Effects: Types

- *Mortality*
- *Immediate Effects* (occurring in treatment area)
  - Cardiovascular & anesthetic
  - prolonged seizures
  - Muscle pain, headache, nausea, oral trauma
  - Post-ictal agitation
- *Cumulative effects* (noticeable between treatments)
  - Cognitive impairment
  - Treatment emergent mania

Acute Mortality of ECT

- Extremely rare in general population - (1:10,000) patients
- More likely in those with serious medical illnesses
  - informed consent implications
- Concept of *relative* risk
  - Is the risk of death or serious morbidity with ECT more or less than the risk without ECT?

Long-Term Mortality with ECT

- Methods: n=192, 65+ years old, unipolar depression

- Mortality @ 500 days:
  - ECT 8%*
  - No ECT 18%

  * ECT lowers long-term mortality ($p<0.05$)

Philibert RA et al., Effect of ECT on mortality and clinical outcome in geriatric unipolar depression. J Clin Psychiatry, 1995.

Cognitive Effects of ECT

- **Amnesia**
  - Anterograde and retrograde
  - Severity varies
  - Persistence varies
- Confusion
- Delirium

Retrograde Amnesia

- Impaired memory for events weeks to months prior to ECT (content, not functional, deficit)
- Events proximal to ECT are the most vulnerable
- Modern ECT techniques cause much less retrograde amnesia

Objective Cognitive Performance Associated with Electroconvulsive Therapy for Depression: A Systematic Review and Meta-Analysis

Maria Semkovska and Declan M. McLoughlin

Background: Electroconvulsive therapy (ECT) is the most acutely effective treatment for depression, but is limited by cognitive side effects. However, research on their persistence, severity, and pattern is inconsistent. We aimed to quantify ECT-associated cognitive changes, specify their pattern, and determine progression.

Methods: MEDLINE, EMBASE, PsycArticles, PsychINFO, PsychLIT, and reference lists were systematically searched through January 2009. We included all independent, within-subjects design studies of depressed patients receiving ECT where cognition was assessed using standardized tests. Main outcome was change in performance after ECT relative to pretreatment scores with respect to delay between finishing ECT and cognitive testing. We explored potential moderators' influence, e.g., electrode placement, stimulus waveform.

Results: Twenty-four cognitive variables (84 studies, 2981 patients) were meta-analyzed. No standardized retrograde amnesia tests were identified. Significant decreases in cognitive performance were observed 0 to 3 days after ECT in 72% of variables: effect sizes (ES) ranging from −1.10 (95% confidence interval [CI], −1.53 to −.67) to −.21 (95% CI, −.40 to .01). Four to 15 days post-ECT, all but one CI included zero or showed positive ES. No negative ES were observed after 15 days, with 57% of variables showing positive ES, ranging from .35 (95% CI, .07–.63) to .75 (95% CI, .43–1.08). Moderators did not influence cognitive outcomes after 3 days post-ECT.

Conclusions: Cognitive abnormalities associated with ECT are mainly limited to the first 3 days posttreatment. Pretreatment functioning levels are subsequently recovered. After 15 days, processing speed, working memory, anterograde memory, and some aspects of executive function improve beyond baseline levels.

Key Words: Cognition, depression, electroconvulsive therapy, memory, meta-analysis, standardized assessment

Cognitive abnormalities associated with ECT are mainly limited to the first 3 days posttreatment.

Electroconvulsive therapy (ECT) is the most acutely effective treatment for depression (1). About 100,000 US patients annually receive ECT, and 3 million worldwide (2, p.14).

controversial. Current research regarding persistence, severity, and precise pattern is inconsistent. For example, 7 to 8 days after a course of brief pulse bilateral ECT, memory function relative to pretreatment assessment has been described as impaired (6,7), recovered (8,9), or improved (10,11). Regarding long-term side effects, descriptive reviews agree that after 6 months no deficits persist (4,12); no significant differences are noted between real or simulated ECT, between outmoded sine-wave ECT or contemporary brief pulse ECT (1), or between ECT or pharmacotherapy (4). However, such conclusions have partial generalizability, as these reviews limited discussion of long-term cognitive effects to just one to two studies.

According to a recent systematic review, differences in ECT modalities may explain variations in cognitive impairment, with bilateral ECT producing greater deficits than unilateral, treatment thrice weekly more than twice weekly, and high dose more than low dose ECT (1). Nonetheless, these data have not been systematically analyzed to provide clearer evidence about patterns of cognitive dysfunction and progression following ECT. Indeed, consensus regarding memory following ECT lacks specificity. Distinctions between encoding, learning, retention, and retrieval are rarely addressed, (15–17). Discrepancies in reviewing methodology, as well as descriptive rather than quantifying approaches, could account for heterogeneous conclusions regarding cognitive outcomes of ECT.

The aims of this meta-analysis are to systematically review cognitive impairments following ECT and provide quantitative estimates of extent; determine pattern of ECT-associated cognitive dysfunctions and posttreatment resolution; and examine contribution of moderator variables.

Methods and Materials

Methodology used follows Meta-Analysis of Observational Studies in Epidemiology guidelines (18).

Search Strategy and Selection Criteria

We searched Medical Literature Analysis and Retrieval System Online, Excerpta Medica Database, PsycArticles, PsychINFO, and PsychLIT from commencement to January 2009, using search terms ECT or electroconvulsive therapy and cognitive, neuropsychology, neuropsychological, memory, attention, executive, spatial, or intellectual. References from reviews and relevant articles were searched for additional studies. Only published reports, including non-English language ones, were searched.

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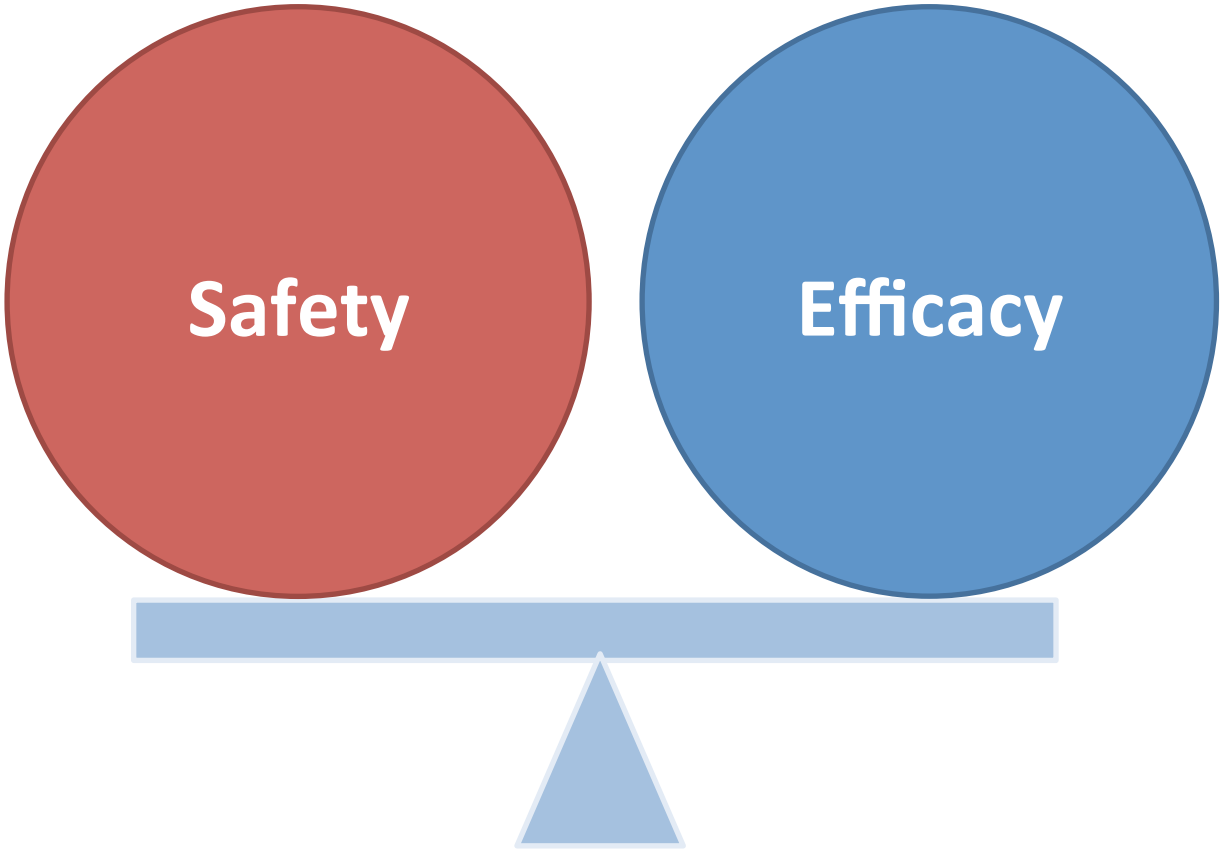
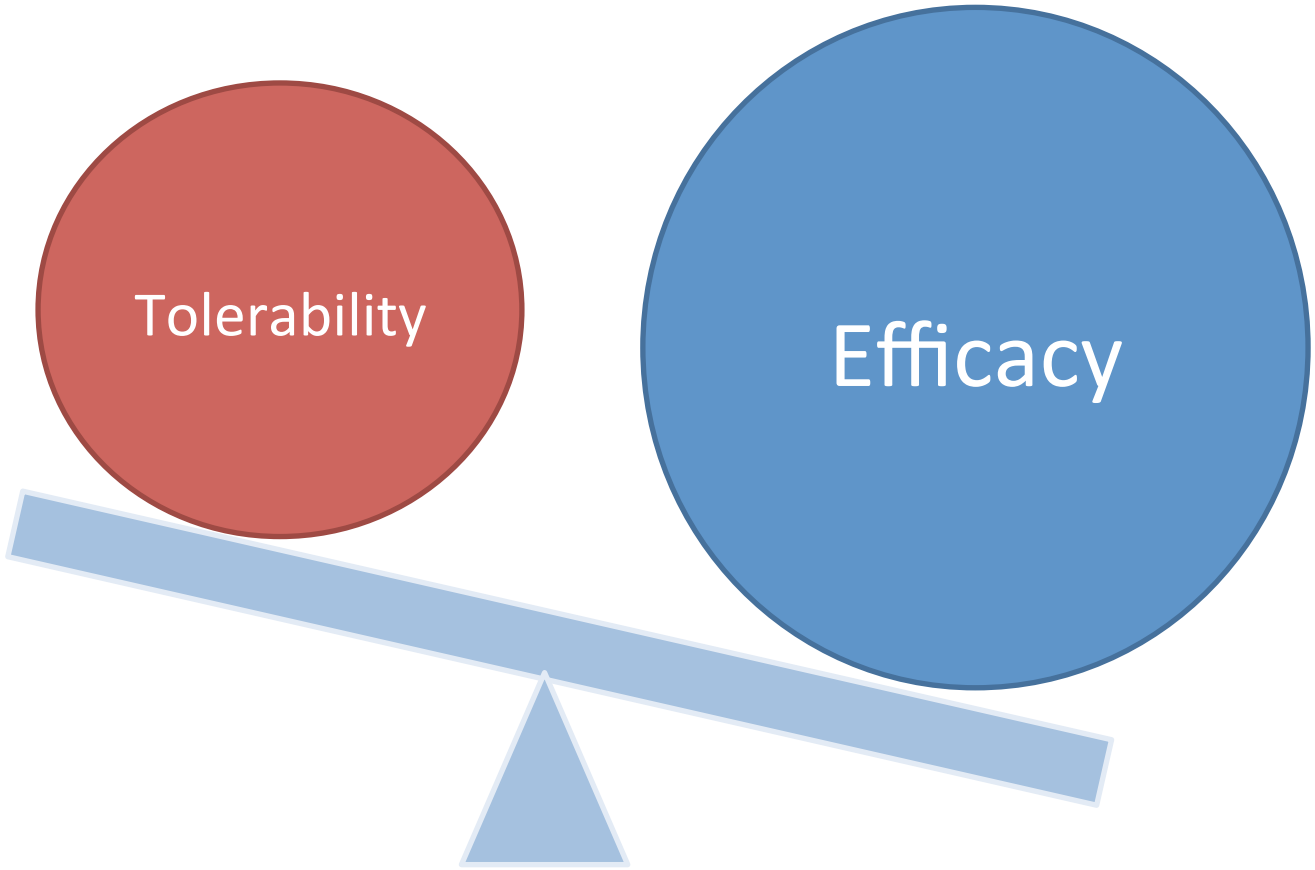
0006-3223/$36.00
doi:10.1016/j.biopsych.2010.06.009

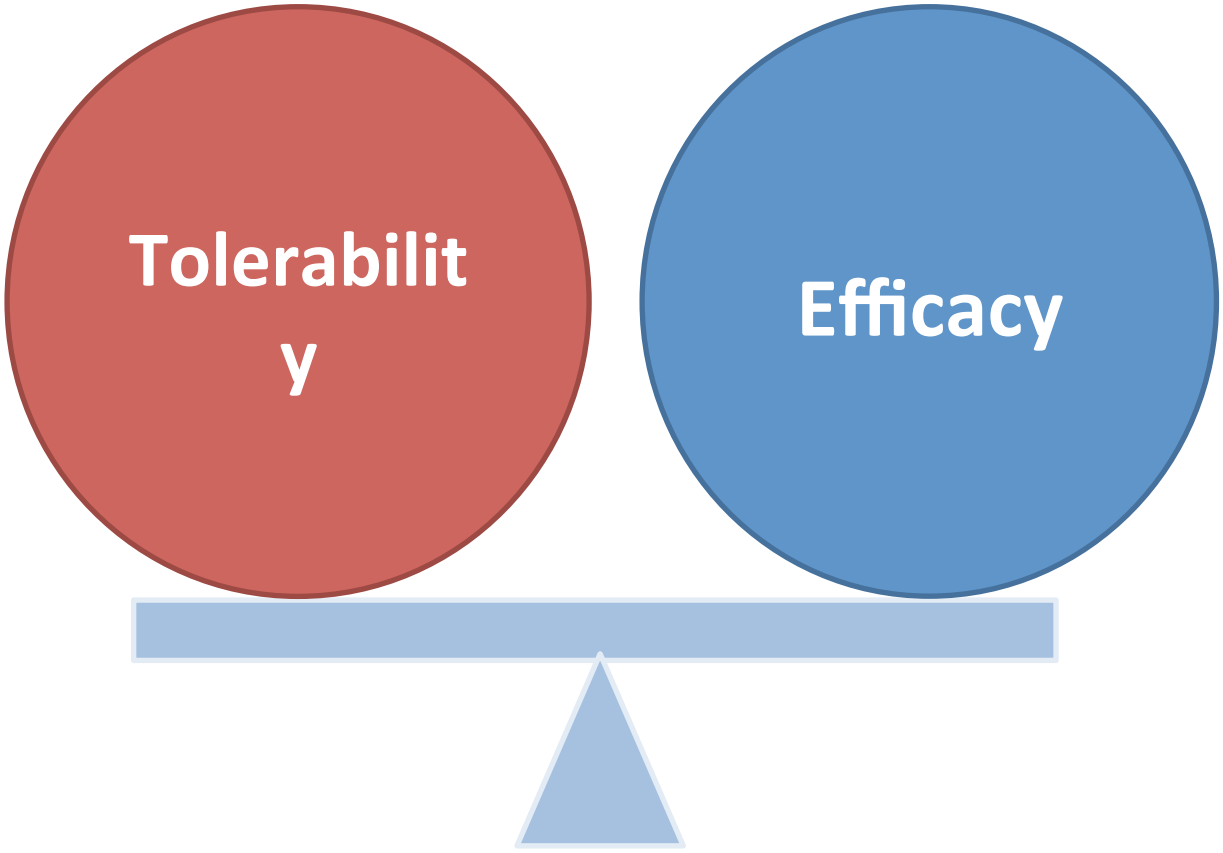
ECT



ECT

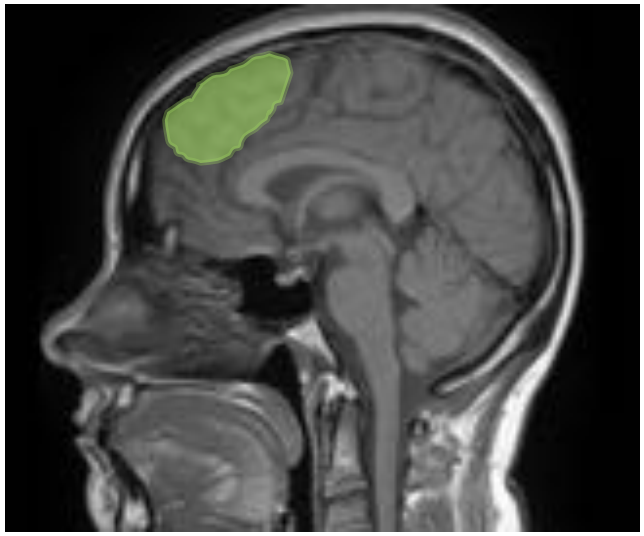


ECT (Optimized)

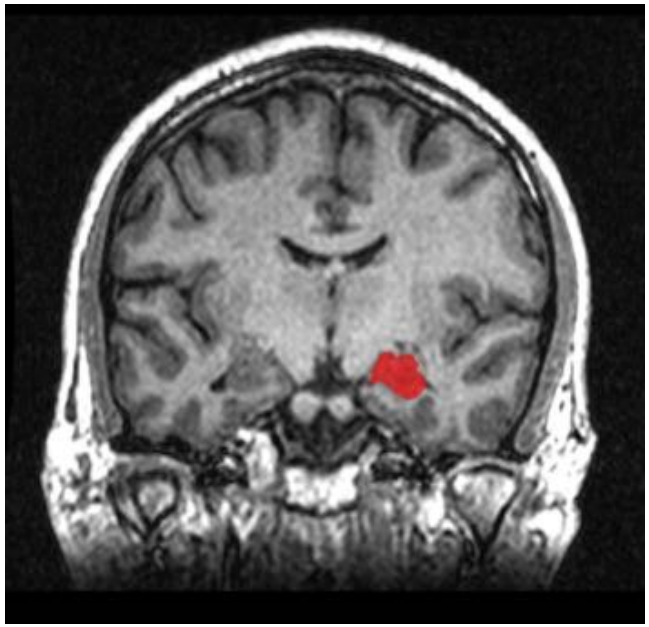


ECT

antidepressant

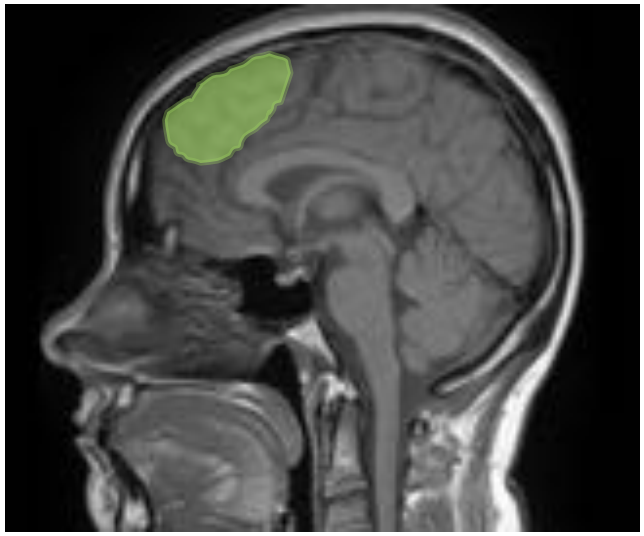


amnestic

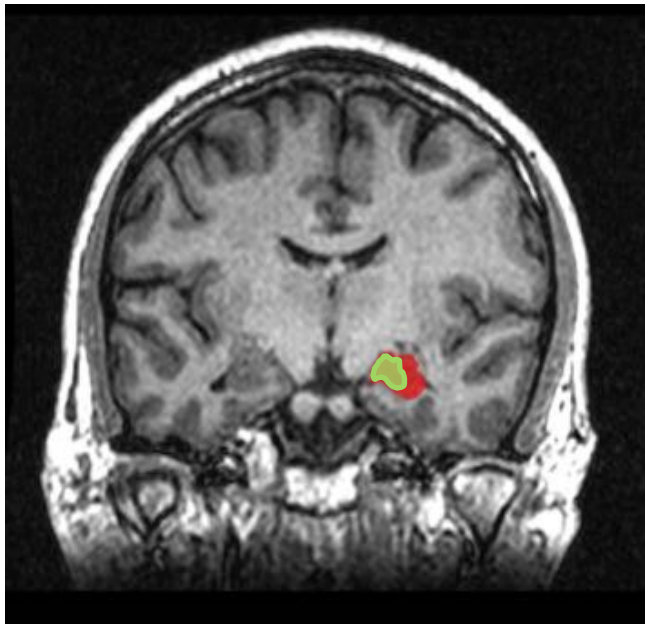


ECT

antidepressant



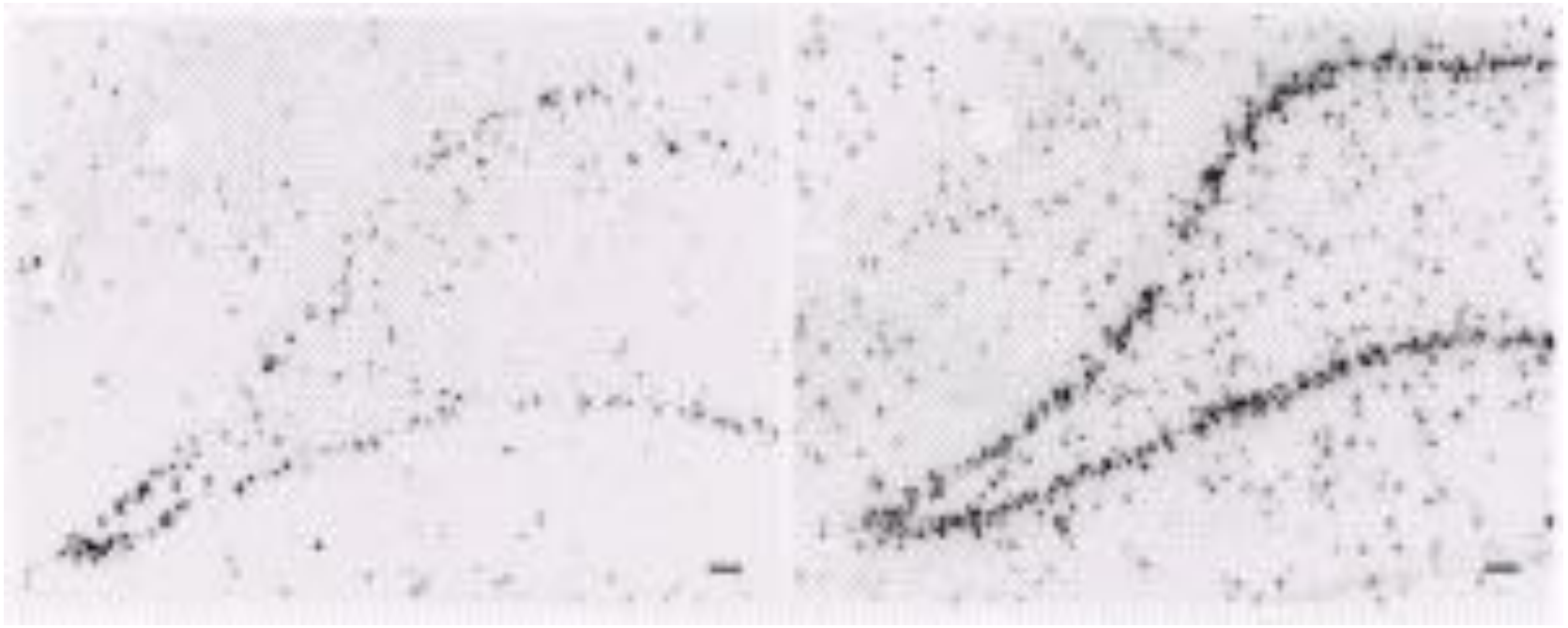
amnestic/ antidepressant



Mechanism of Action of ECT

- Neurotransmitter
- Neuroendocrine
- Anticonvulsant
- Neurotrophic

Neurogenesis and ECT: Dose-Response Effects



Sham **ECS: 10 Treatments**

Madsen TM, Treschow A, Bengzon J, Bolwig TG, Lindvall O, Tingstrom A. Increased neurogenesis in a model of electroconvulsive therapy. *Biol Psychiatry*, 2000.

PNAS

Electroconvulsive therapy-induced brain plasticity determines therapeutic outcome in mood disorders

Juergen Dukart[a,b,1], Francesca Regen[c,1], Ferath Kherif[a], Michael Colla[c,d], Malek Bajbouj[c], Isabella Heuser[c], Richard S. Frackowiak[a], and Bogdan Draganski[a,b,2]

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Edited by Marcus E. Raichle, Washington University in St. Louis, St. Louis, MO, and approved December 11, 2013 (received for review November 14, 2013)

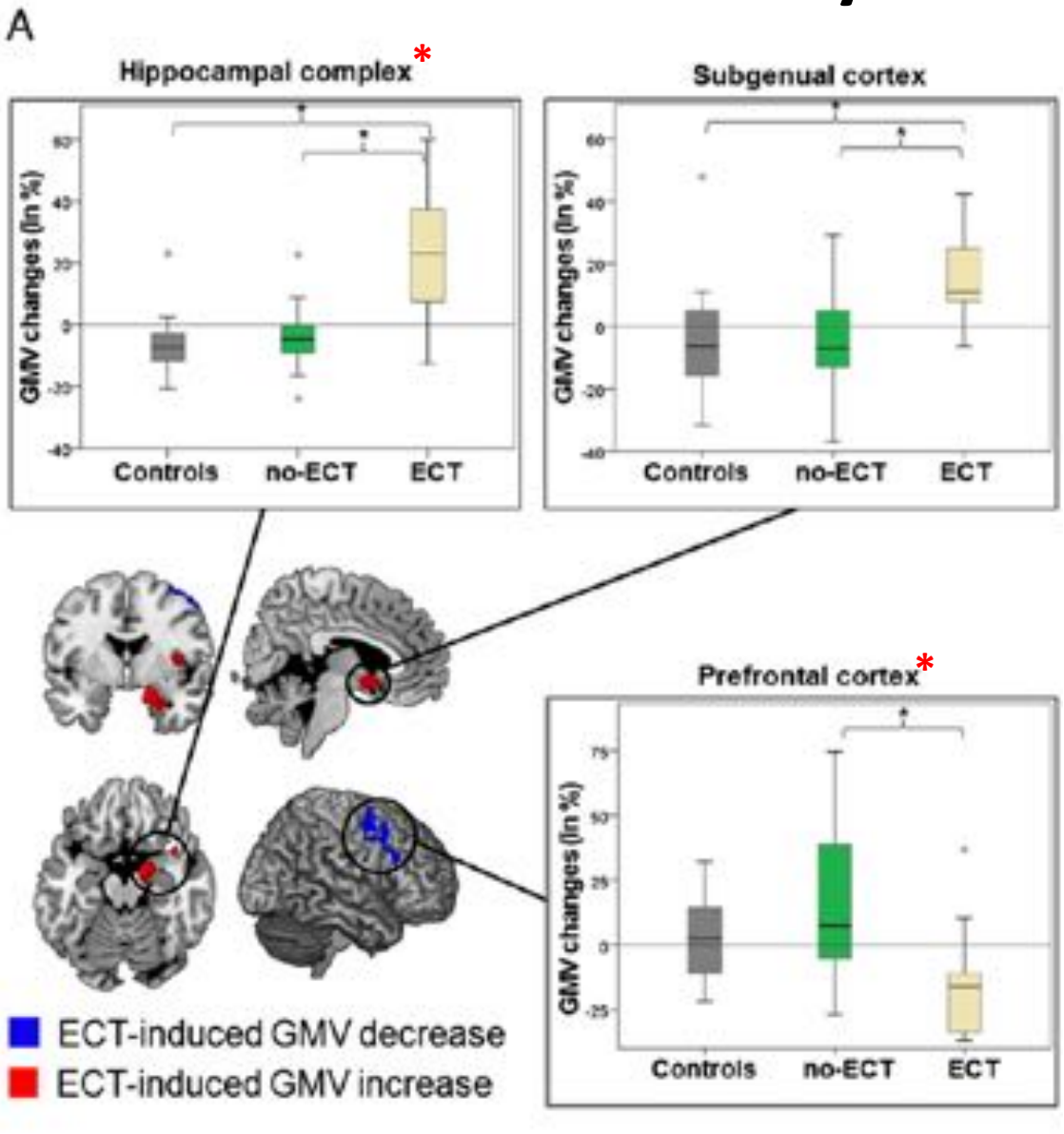
There remains much scientific, clinical, and ethical controversy concerning the use of electroconvulsive therapy (ECT) for psychiatric disorders stemming from a lack of information and knowledge about how such treatment might work, given its nonspecific and spatially unfocused nature. The mode of action of ECT has even been ascribed to a "barbaric" form of placebo effect. Here we show differential, highly specific, spatially distributed effects of ECT on regional brain structure in two populations: patients with unipolar or bipolar disorder. Unipolar and bipolar disorders respond differentially to ECT and the associated local brain-volume changes, which occur in areas previously associated with these diseases, correlate with symptom severity and the therapeutic effect. Our unique evidence shows that electrophysical therapeutic effects, although applied generally, take on regional significance through interactions with brain pathophysiology.

interested to see if there are any local anatomical effects attributable to ECT and whether any improvements of mood are explained by interaction between ECT and differentially distributed, disease-modified, brain regions.

Results

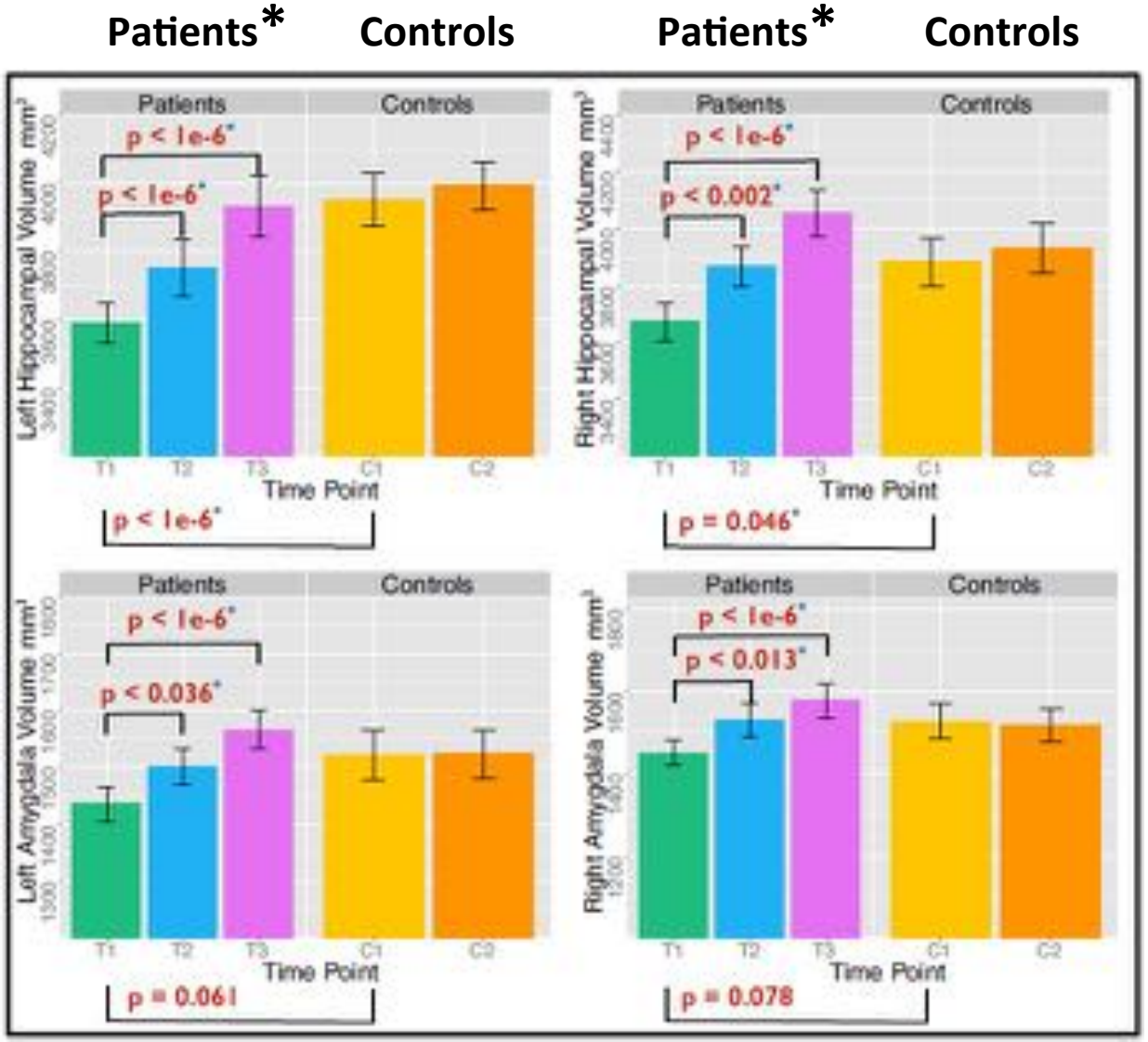
Behaviorally, the patient groups were significantly different from controls at all time points on the Hamilton Depression Rating Scale (HDRS) (13). At TP2 and TP3 the ECT-treated and -untreated patients both had attenuated and similarly depressed mood as both were being optimally treated (Fig. 2*A*). Both patient groups improved symptomatically between TP1 and TP2 but no further improvement was noted at TP3 [ECT TP1 vs. T2: $t(9) = 4.4$; $P = 0.002$; no-ECT TP1 vs. TP2: $t(23) = 5.3$; $P < 0.001$; ECT TP2 vs. TP3: $t(9) = 1.2$; $P = 0.273$; no-ECT TP2 vs. TP3: $t(23) = 0.9$;

ECT Bidirectionally Affects Grey Matter Volume and Brain Plasticity



Dukart et al, PNAS, 2013

ECT: Hippocampal/Amygdala Plasticity



Joshi et al., Structural Plasticity of the Hippocampus and Amygdala Induced by Electroconvulsive Therapy in Major Depression, **Biological Psychiatry**, available online **4 March 2015**.

Who Receives ECT in USA?

- **Diagnosis**: mainly major depression, much less in catatonia, schizoaffective/schizophrenia d/o, mania *(other disorders only when comorbid to these)*
- **Gender**: follows diagnosis & population demographics
- **Race**: much more likely in caucasian
- **Age**: growing incidence in elderly, very little in adolescents, extremely little in children
- **Location**: most in general nonprofit hospitals (particularly academically affiliated), less in VA medical centers, and least in public facilities

Fall in ECT Use in Young People in Edinburgh

To the Editor:

We reported the rate of use of electroconvulsive therapy (ECT) in young people in Edinburgh between 1982 and 1998 because of the special interest in the use of ECT in this age group.[1,4] Between 1982 and 1992 the clinic treated an average of one patient aged less than 18 years of age every two years. Coterminous and contemporaneous population data for young people in the catchment population became available only from 1993. Between 1993 and 1998, ECT use remained the same, but it became possible to translate this to an aggregate annual rate of ECT use of 0.5 young patients per 100,000 total population, or 2.5 patients per 100,000 young people. In fact, all ten of the young patients treated between 1982 and 1998 were 17 year-old women.

We now report that no patient aged under 18 years has been treated at our clinic in the five years from January 1 1999 to December 31, 2004. We infer that this reflects a real fall in the use of ECT in young people, although we accept that only the passage of more time will confirm this. The clinic remains the only facility in Edinburgh where young

[has taken in Edinburgh. Secondly, the] Royal College of Psychiatrists recommended special precautions for the selection of young people for ECT in 1995.[5] Thirdly, a Health Technology Appraisal by the National Institute for Clinical Excellence concluded that there was insufficient information to allow appropriate risk-benefit assessment of ECT for certain groups of people, including children and young people; nevertheless, the recommendation was that the risks associated with ECT may be enhanced in young people and that clinicians exercise particular caution when considering ECT.[3]

We cannot tell if this apparent fall means that a small number of severely ill young people who formerly would have been treated with ECT are now offered effective alternatives, or if they are now deprived of an effective treatment.

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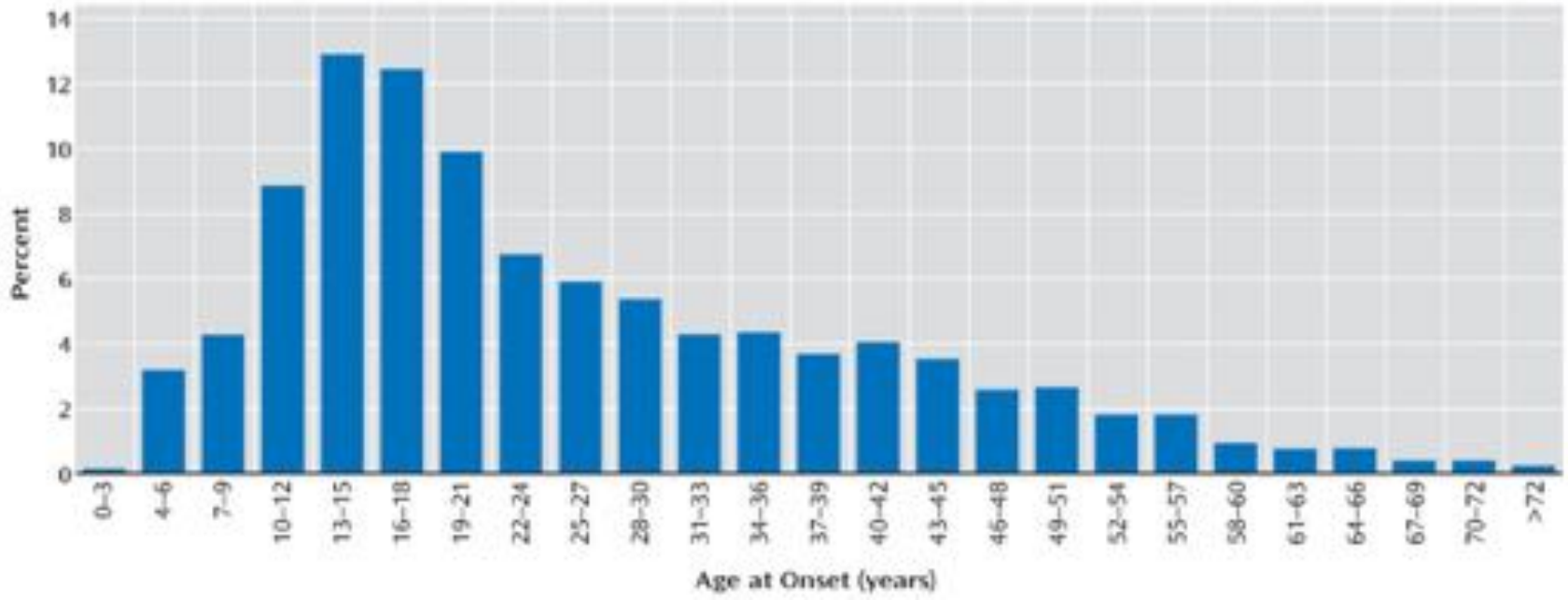
1. Cook A, Scott A. ECT for young people. *Br J Psychiatry*. 1992;161:718–719.
2. Glen T, Scott AIF. Rates of electroconvulsive therapy use in Edinburgh 1992–1997. *The J Affective Disord*. 1999;54:81–86.
3. National Institute for Clinical Excellence. *Guidance on the Use of Electroconvulsive Therapy*. (Technology Appraisal 59), April 2003. Available

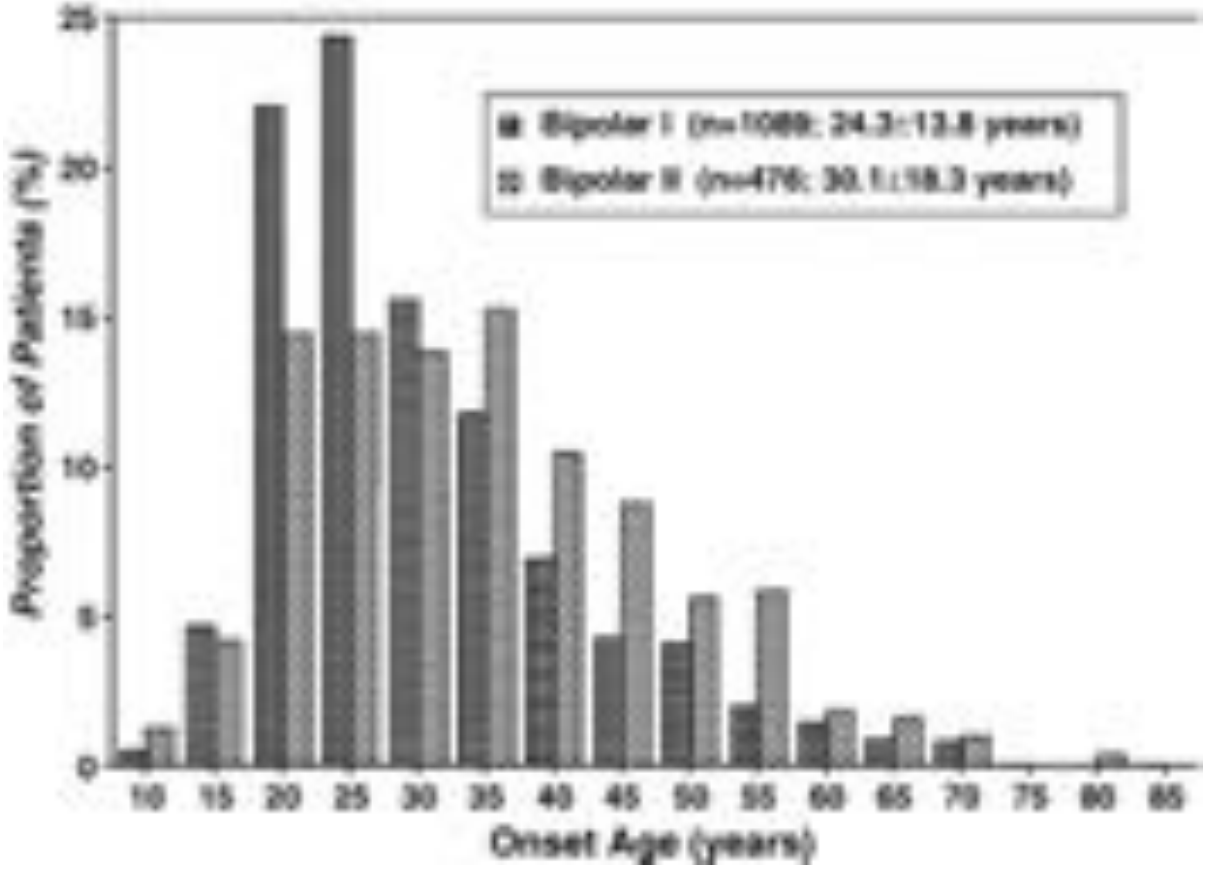
Scott AI, Gardner M, Good R. Fall in ECT Use in Young People in Edinburgh. J ECT, 2005.

Age on Onset of First Major Depressive Episode



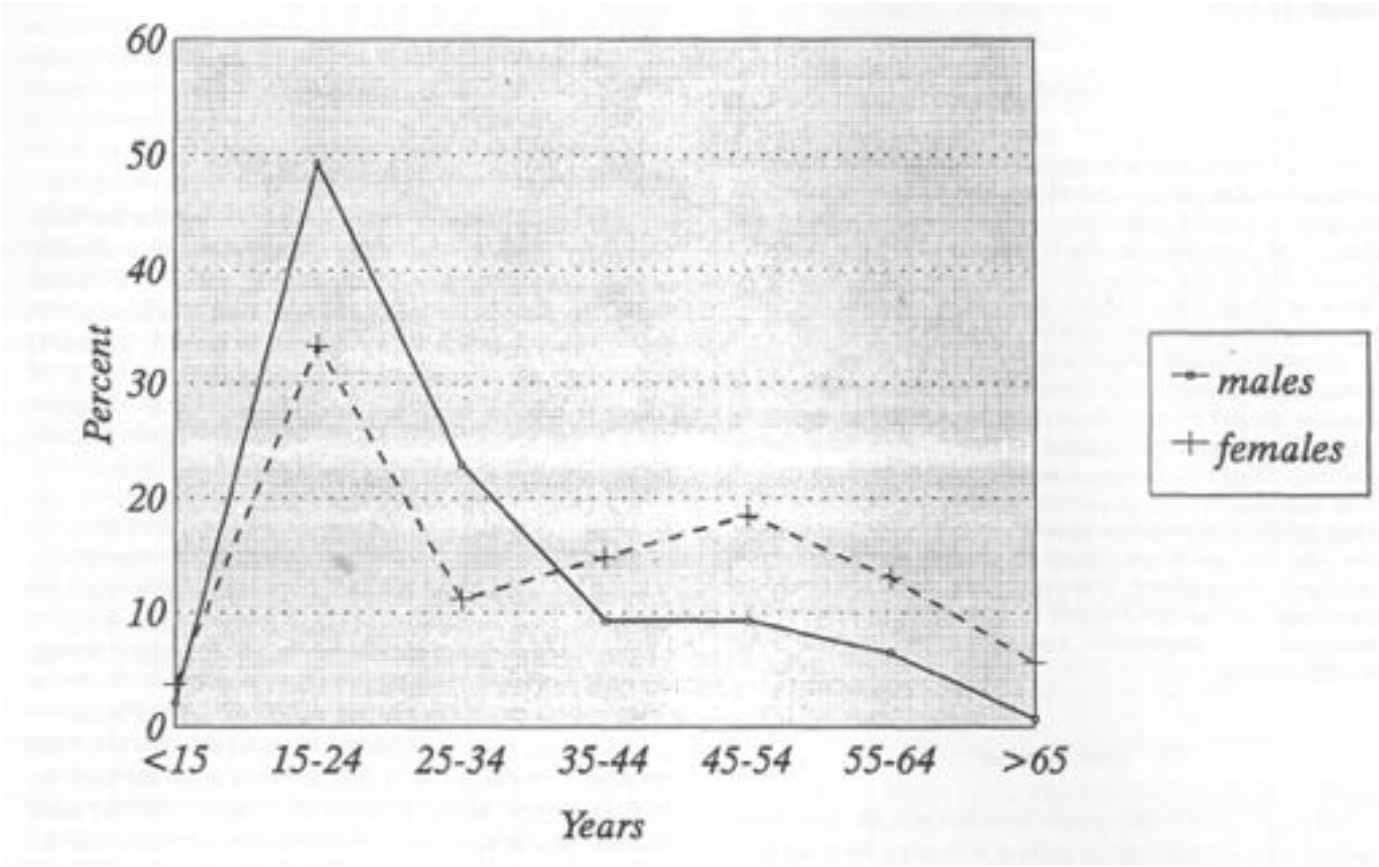
Zisook S, et al. “The Effect of Age at Onset on the Course of Major Depressive Disorder.” Am J Psych 2007; 164:1539-1546.

Age of Onset of Bipolar Disorder

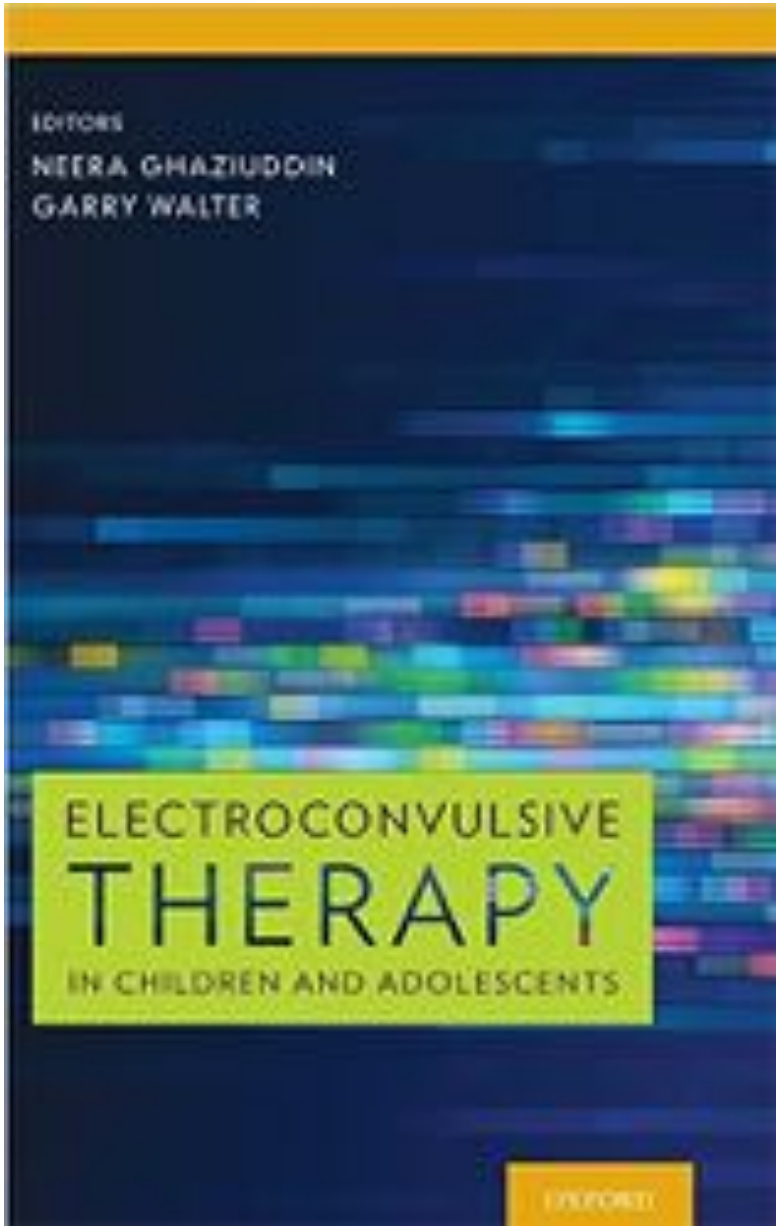


Baldessarini RJ, et al. "Onset-age of bipolar disorders at six international sites." J Affective Disorders 121 (2010): 143-146.

Age of Onset of Schizophrenia



Lindamer LA, et al. “Gender, estrogen, and schizophrenia.” Psychopharmacology Bulletin 33.2 (1997): 221-8.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ELECTROCONVULSIVE
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OXFORD

The History of Pediatric ECT

Edward Shorter

- Seven decades of use suggest that ECT in children and adolescents is similar to ECT in adults.
- The rejection of ECT in children and adolescents, that began in the 1960s, was a result of the cultural upheavals of the period, not a result of negative new scientific findings.
- A revival of ECT in children and adolescents began in the 1990s
- Child psychiatry has not been receptive to scientific data on the safety and efficacy of ECT.

Shorter, E. Chapter 1 of Electroconvulsive Therapy in Children and Adolescents, eds. Ghaziuddin N & Walter G, 2013.

ECT and Stigma

Andrew McDonald and Garry Walter

- Stigma encountered by those with mental illness can be exacerbated by treatments such as ECT.
- Stigma is perpetuated by the treatment of ECT in movies and other media.
- Studies of public opinion suggest that knowledge about ECT is generally inaccurate and attitudes towards it are highly negative.
- Among health professionals, a consistent research finding is that greater knowledge about ECT is associated with favorable attitude; psychiatrists have more positive views than other health professionals.
- Overall, opinions of patients and family members about ECT are favorable.

McDonald A & Walter G. Chapter 3 of Electroconvulsive Therapy in Children and Adolescents, eds. Ghaziuddin N & Walter G, 2013.

ECT for Mood Disorders

Neera Ghaziuddin

- ECT may be used for the treatment of unipolar and bipolar disorders in children and adolescents.
- There are no controlled trials of ECT for the treatment of mood disorders in patients < 18 years old.
- Consideration for ECT should be based on illness severity and treatment resistance; severity of illness that may take precedence over treatment resistance in some cases.
- ECT should not be considered a treatment of last resort for mood disorders in this age group.
- Although ECT is rarely used in prepubertal children, there appear to be no differences in indication or practice.

Ghaziuddin N. Chapter 9 of Electroconvulsive Therapy in Children and Adolescents, eds. Ghaziuddin N & Walter G, 2013.

ECT for Self-Injurious Behavior

Lee E. Wachtel and Dirk M. Dhossche

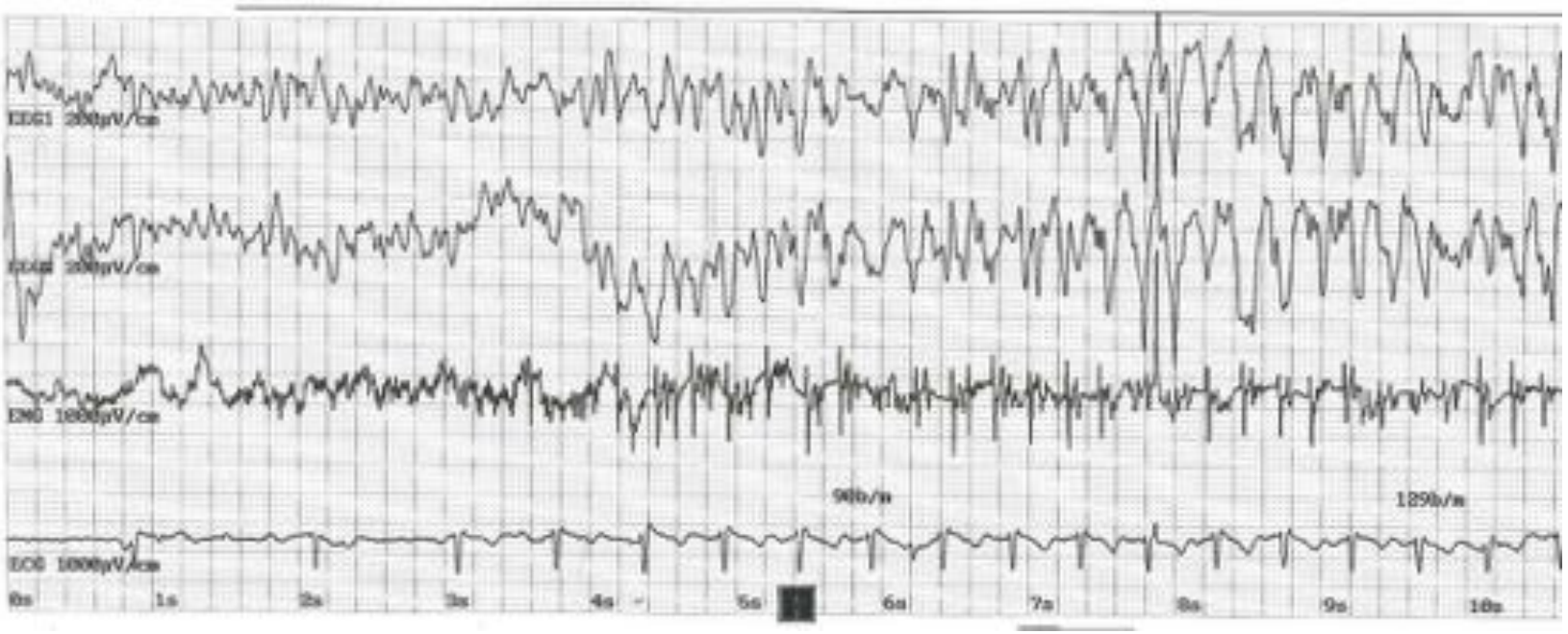
- Self-injurious behavior (SIB) poses a significant clinical challenge for many patients with autism or other intellectual disabilities.
- Some forms of repetitive high-intensity, high-frequency SIB may represent a movement disturbance, best conceptualized as an alternate symptom of catatonia.
- This type of SIB may be exquisitely responsive to ECT with profound patient benefi
- Maintenance ECT is crucial and poses unique challenges.
- Ethical and legal issues, lack of access to ECT, and stigma are salient obstacles to effective treatment.

Wachtel LE & Dhossche DM. Chapter 12 of Electroconvulsive Therapy in Children and Adolescents, eds. Ghaziuddin N & Walter G, 2013.

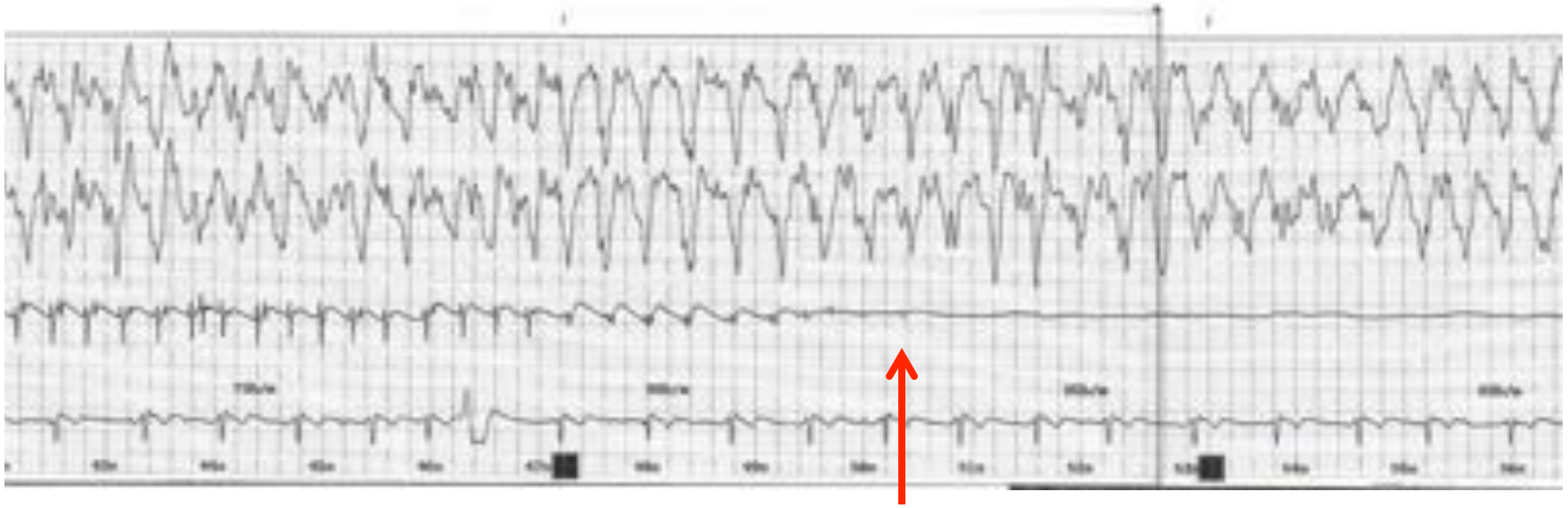
Technical Issues: ECT in Children/Adolescents

- Clinical Characteristics:
  - Lower seizure threshold
  - Longer seizures (especially at first treatment)
- Treatment Modifications:
  - Preferential use of propofol
  - Low stimulus charge
  - Be prepared to terminate long/prolonged seizure

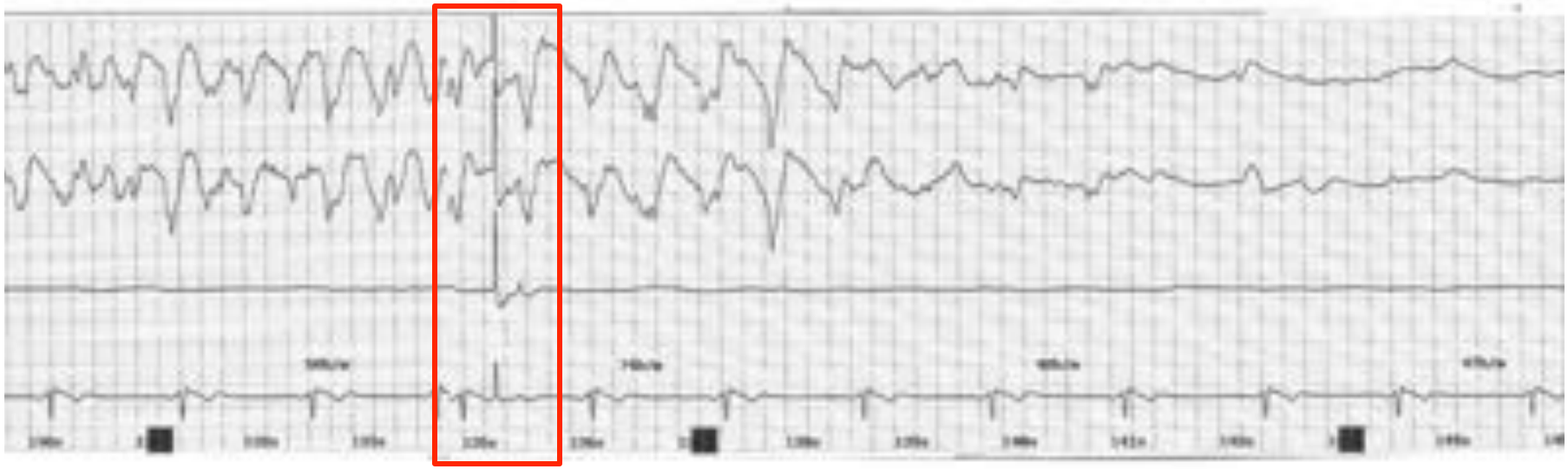
Seizure Onset, 28 year old female (RUL-UBP)



Motor Seizure Endpoint

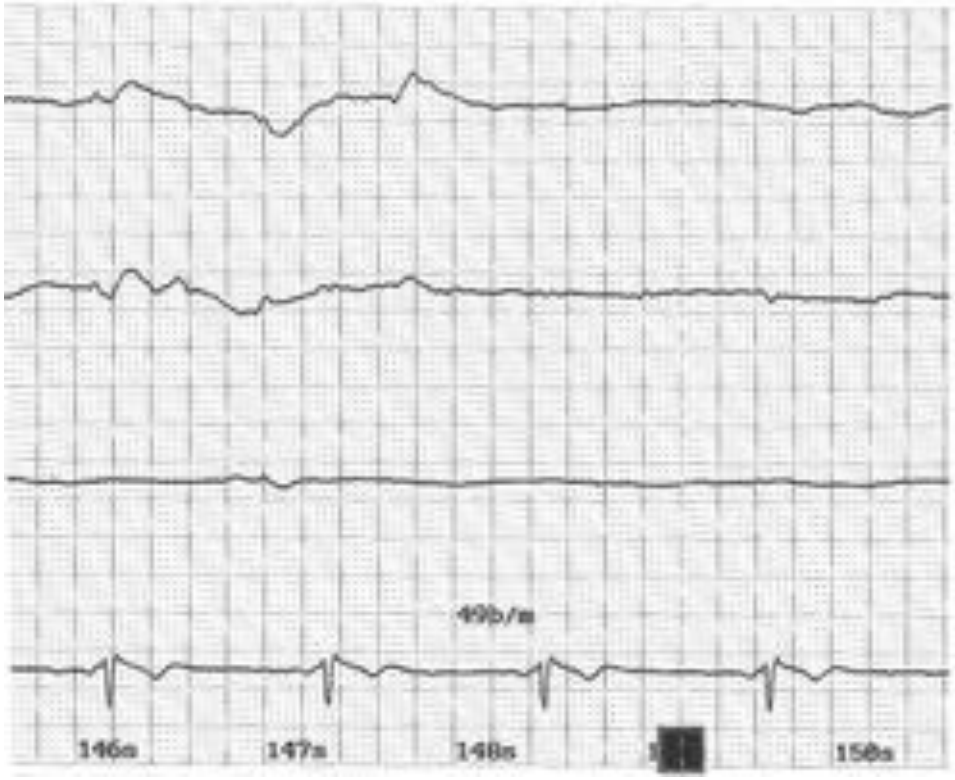


Intervention to Terminate Seizure



30 mg propofol given

EEG Seizure Endpoint



Mount Sinai
05/02/16 10:56:09
% Energy Set..... 30 %
Charge Delivered..... 148.4 mC
Current..... 0.88 A
Stimulus Duration..... 6.7 Sec
Frequency..... 50 Hz
Pulse Width..... 0.25 mSec
Static Impedance..... 1320 Ohm
Dynamic Impedance..... 280 Ohm
EEG Endpoint..... 141 Sec
EMG Endpoint..... 49 Sec
Base Heart Rate..... 99 b/m
Peak Heart Rate..... 136 b/m
Average Seizure Energy Index.. 12547.4 μV2
Postictal Suppression Index... 82.0 %
Maximum Sustained Power..... 20239.8 μV2
Time to Peak Power..... 18 Sec
Maximum Sustained Coherence... 99.4 %
Time to Peak Coherence..... 27 Sec
Early Ictal Amplitude..... 124.2 μV
Midictal Amplitude..... 201.2 μV
Program Selected: LOW 0.25 CHARGE RATE

Family Member Presence During ECT (Family-Centered ECT)

- Described in JECT 2005*
- Promoted by Drs. Justin and Ed Coffey
- Workshops at ISEN 2015, 2016
- Adopted at Mount Sinai 2015

* Evans G & Staudenmeier J. Family Member Presence During Electroconvulsive Therapy: Patient Rights Versus Medical Culture. *Journal of ECT*, 2005.

FAMILY-CENTERED CESAREAN BIRTH

- Healthy women undergoing cesarean births of non-compromised singleton fetuses at term
- Inviting the partner into the operating room for the procedure (including anesthesia induction)
- Early mother-infant skin-to-skin care in the operating room
- Initiating breastfeeding in the operating room
- Optimizing the environment of care to meet the woman's and family's needs (such as draping the woman in such a way as to facilitate maternal viewing of the birth, and adjusting the lights, sounds, and temperature in the operating room)

Smith J, et al. *BJOG*. 2008;115(8)1037-1042.
Magee SR,et al. . *J Am Board Fam Med*. 2014;27:690-693.

From M. Justin Coffey, MD, 2016

What Family-Centered Care is Not

- Is NOT a new concept
- Does NOT require staff to relinquish all decision making to the patient's family members
- Does NOT allow patients' families to be rude or abusive to staff
- Does NOT permit interference with patient care

From Morris Brown, MD, 2016

Theoretical Disadvantages of Family Presence

- Concern of “an outsider” in the procedure area
- Tendency to overmedicate
- Attention to family member who may need care
- Interference with patient care
- Deal with complications
- Adhere to institutional safety and infection control practices

Modified from Morris Brown, MD, 2016

Advantages of Family Member Presence

- Patient more comfortable and relaxed
- Family member understands the procedure
- Avoid long waiting room time
- Avoid fear of the unknown/complications
- Immediate reassurance once procedure is completed
- Decreases stigma

From Morris Brown, MD, 2016

Patient/Family – Centered ECT (quotes from Mount Sinai)

- Husband of 35 y/o female with schizoaffective disorder:

  …I'm glad I stayed. I was completely fine. Normally I am sensitive and I'm the first person to faint, but I was completely fine. I saw her foot and her face, but I was fine with it. It wasn't shocking. It took away some of the mystery.

- Son of 70 y/o female with psychotic depression:

  I'm really glad we saw it. It's much different than people think. I think people have different views of it, you know, because of the Jack Nicholson movie. I was afraid of ECT for many years, but it's much different than people think.

- Daughter of 70 y/o female with psychotic depression:

  It made her [the patient] feel more comfortable, too.

A Divergent Opinion

An interesting idea.

We've had a few family members who were intensely interested and made a request. I have never had an anesthesiologist who thought this was good idea and all flatly refused to allow it.

I can see both sides but have decided not to entertain such requests in our program. Arguably, there is value to the potential alleviation of anxiety and reorientation to a familiar face. But if there are serious complications or if folks act out, the outcomes would potentially be less than beneficial. People faint while watching procedures for the first time.

From a safety and medical-legal perspective one would have to consider some process to vet relatives. In the past week, a patient's husband communicated the following threat to our nurse " "If ya'll do anything to hurt my wife, I will come and take out as many of you as I can before ya'll shoot me...." While he might have been assuaged by the opportunity to observe, I would question whether he was emotionally stable enough to participate.

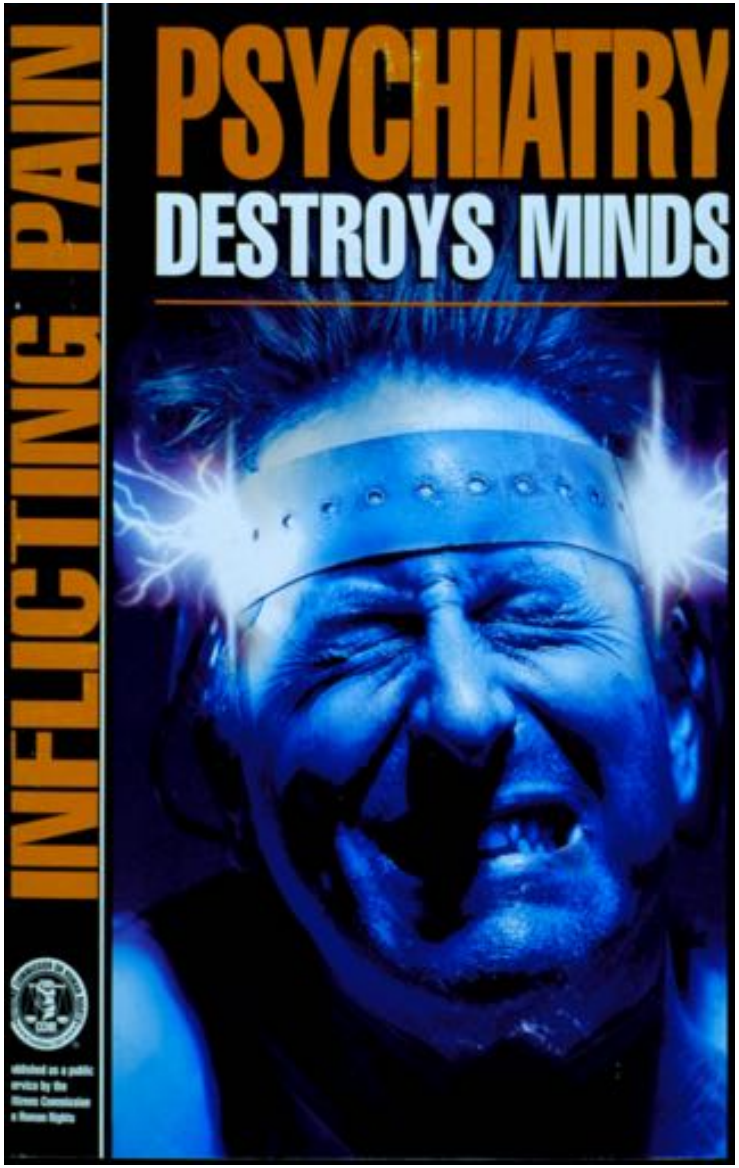
There are also HIPAA issues to consider, depending on the setup of the ECT suite, PACU, etc.

Regards, P.

Demystifying ECT

- "Family member presence provides a witness who can testify to the quotidian nature of ECT."

  (from *Family Member Presence During Electroconvulsive Therapy: Patient Rights Versus Medical Culture*. Evans, G and Staudenmeier, J. *Journal of ECT*. 2005.)


INFLICTING PAIN
PSYCHIATRY
DESTROYS MINDS