

Appendix

Article review. *Psychiatric conditions*. Evidence table 1.

Author, Year, Study design	Study Design	# of patients; population, setting	Description of intervention	Descriptn. of controls	Outcome assessed, instruments	Results	Comments (limitations, potential bias)
Roemer 1990	Prospective randomized; two arms; double blind rating of depressive symptoms (for patients and raters; not attending psychiatrists)	Patients with DSM-III-R major depressive episode, with and without psychosis, referred to an inpatient specialized unit N=29	16 patients received bilateral two-seizure induction (Modified MECT)	13 patients received bilateral single-seizure (conventnl ECT)	(Accelerated) recovery from depressive symptoms: Hamilton rating scale (HAM-D); brief psychiatric rating scale (BPRS) Side effects: chart entries Measures taken pre-treatment, after session 4 and post treatment	From pre-treatment to 4 th session, MECT associated with more rapid benefit. Remission rates (HAM-D ratings < or =10) at the end of treatment similar in both groups: 75% for MECT and 69% for CECT No prolonged seizures. Post-treatment confusion (time-place disorientation; not recognizing staff): 62% for MECT; 15% for SECT (reversed before discharge)	Small sample Rating of cognitive side-effects not blinded No systematic measurement of side effects (chart review less sensitive than direct testing)
Maletzky 1986	Prospective non-randomized; two arms; inclusion criteria not described; blinded raters	N=54 Inpatient hospital; mean age, sex ND; diagnosis: major depressive episodes (unspecified)	27 patients received unilateral MECT Inclusion criteria: determined by the attending physicians	27 patients received unilateral conventnl ECT	Severity of depression: Bunney-Hamburg scale; Wakefield test, self-reported Side effect: side effects rating scale (SES); Weschler Memory scale (WMS) Complications	Methods did not differ on post-treatment effectiveness measures (at 5 days, 6 and 12 months) Adverse effect measures did not differ at 5 days post-treatment. Prolonged seizures more frequent in MECT group (2 MECT patients had 3; one SECT patient had one)	Non-randomized: selection bias likely in physician choice of treatment. Baseline parameters for experimental and control groups ND ECT performed by different practitioners (possible intervention bias). Side effects ND > 5 days post Rx

Article review. Psychiatric conditions. Evidence table 1 (cont.)

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Mielke 1984	Retrospective uncontrolled comparison of two treatment groups broken down by age (elderly vs. non-elderly)	First 50 psychiatric unit inpatients with Dx of “endogenous depression” Final N=44 (24 subjects > 60 y/o)	Both treatment groups received MECT (2-5 seizures per session) N=6: bilateral; N=25: unilateral; N=13: both	No matched controls for either treatment group	Number of treatment sessions, number of seizures, total seizure time, presence of complications, adverse effects, individual clinical course (from chart) 6 charts discarded Therapeutic response scale ND	No significant difference in clinical improvement noted between the two age groups One elderly patient (72 y/o) had a myocardial infarction after 3 rd session (11 th seizure). Age ND for other side effects. Post-ictal acute confusional state in “some” patients. All (N=3) patients on lithium had post-ictal confusion, lasting seven days in one case.	No control group Removal of data from six patients unclear Adverse effects not described by age group, preventing comparison b/ groups No formal scale to measure clinical improvement No pre-established timing for outcome measurement
Berens, Yesavage 1982	Retrospective comparison with historical controls	N=30 (including 25 patients from Yesavage, Berens 1980 study below)	13 patients received MECT. Analysis limited to major depression N=12 Age: 51	17 patients received SECT Analysis limited to major depression N=14 Age: 57	Efficacy and safety: “improved” or “not improved” by discharge summary Side effects by chart review Other: # of sessions of anesthesia, of seizures, duration of treatment, dosage of succinyl choline, thiopental, blood pressure, ECG	10 MECT and 11 SECT patients improved One memory impairment complaint for MECT; 4 for SECT (non-significant) Statistically significant: Days of treatment: 11 for MECT; 27 for SECT Number of sessions: 4.9 for MECT; 11.7 for SECT Mean dose of succinyl choline: 0.7 (MECT) and 1 (SECT)	The addition of five patients in the SECT group and the removal of age as a criterion for inclusion in the analysis did not alter results significantly Limitations of very similar study by same authors below apply.

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Yesavage, Berens 1980	Retrospective comparison with historical controls (SECT changed to MECT as routine modality at hospital in 1977).	N=25; Inpatient setting (VA) Most >45 y/o Endogenous depression Patients were classified as MECT if > 50% of total number of seizures were received in that modality	13 patients received MECT (up to 4 seizures per session) Inclusion criteria ND Analysis limited to those > 45 y/o with depression (N=10) Average age: 55.6 y	12 patients received SECT (more than 50% of treatments) Inclusion criteria ND Same criteria for analysis (N=10) Average age: 59.8 y	Efficacy and safety: “improved” or “not improved” by discharge summary Side effects by chart review ECT application outcomes: number of sessions of anesthesia, of seizures, duration of treatment, dosage of succinyl choline, thiopental, blood pressure, ECG	Not statistically significant: 8 MECT and 6 SECT patients improved One complaint of memory impairment in MECT group and 4 for SECT Statistically significant: Mean number of seizures: 11.3 for MECT; 12 for SECT) Days of treatment: 10.8 for MECT; 28.1 for SECT Number of sessions: 4.9 for MECT; 11.9 for SECT Mean dosage of succinyl choline: 0.68 (MECT) and 0.97 (SECT)	Retrospective review; treatment given in different time periods; non-randomized; small number of subjects. Questionable comparability of groups (e.g., age, possibility of selection bias) Non-standardized assessment instruments (possibility of observation bias)
Abrams 1972	Case series	38 patients, age ND; setting ND; diagnoses ND	23 patients received MECT-4; 15 received MECT-6 3 electrode placements	Self in cases 5, 6 and 7.	Complications of the procedure Post-ictal confusional state Improvement of clinical conditions	Cases 5, 6, 7 who had previously responded to SECT had “disappointing” MECT results; two received SECT subsequently and recovered Confusional state only after MECT-6, two with “prolonged” confusion (greater incidence?) Accelerated response to treatment in some instances	No comparison group; informal measures of outcome and side-effects Patient population not sufficiently characterized

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Strain 1971	Case report	62 y/o woman admitted to a psychiatric hospital unit; depression of 3 months	Four seizures during one anesthetic session to be repeated 48 hours later	Self; two previous depressive episodes, responsive to 6-8 SECT sessions	Clinical improvement Adverse effects Complications Memory impairment	Less therapeutic effect than with previous SECT Complications: very prolonged (>50 min) first treatment fourth seizure (status epilepticus); cerebrovascular episode after 4 th seizure (left- sided weakness, blurred vision) not completely resolved by the time of discharge 4 weeks later	First report on neurological and cerebrovascular complications with MECT. Authors highlight higher risk of cardiovascular events and prolonged seizures with MECT particularly in elderly

Article review: Neurological conditions. Evidence table 2.

Author, Year, Study design	Study Design	# of patients; population, setting	Description of intervention	Descriptn. of controls	Outcome assessed, instruments	Results	Comments (limitations, potential bias)
Griesemer 1997	Case series	13 y/o boy w/ microgyria; 10 y/o girl w/ microcephaly both w/ seizures unresponsive to medication	Patient 1: one alternate-date and one consecutive-day SECT series, plus 3 (4 seizure) MECT sessions Patient 2: one alternate-date plus 2 consecutive-day SECT series	Self	Change in pattern of seizures (drop attacks, head drops partial, tonic, tonic-clonic seizures, lethargic state, non-convulsive status epilepticus) Side-effects: ND	Transient reduction in frequency of seizure episodes after ECT Apparent correlation between therapeutic effect and frequency of administration (alternate-day, consecutive-day SECT, MECT)	No assessment of adverse effects. Authors suggest “intensity” of ECT protocols for intractable seizure may differ from those for treatment of depression but warn that benefit may be transient. Urge further study of patient selection, protocols and maintenance therapy.
McKinney 1997	Case report	19 y/o woman with Neuroleptic Malignant Syndrome (NMS) admitted to ICU	Three weeks post admission 4 sessions of bilateral ECT within 5 days 3 seizures 1 st session; one seizure in sessions 2 and 3; two in session 4	Self		More alert and responsive to stimuli; fever decreased; pulse and blood pressure more stable Post-ictal myoclonic jerks led to gastrostomy with ensuing complications Discharge after one month (“almost back to normal”)	Authors do not advocate routine use of MECT except when “considerations of efficacy completely overshadow concerns about side effects.” Recommend that MECT or daily ECT sessions be used when urgent

Article review: Neurological conditions. Evidence table 2 (cont.)

Author, Year, Study design	Study Design	# of patients; population, setting	Description of intervention	Descriptn. of controls	Outcome assessed, instruments	Results	Comments (limitations, potential bias)
Zeidenberg 1976	Case report	31 y/o white man with muscular dystrophy with severe depression (psychomotor retardation, weight loss) admitted to inpatient psychiatric unit	After two SECT sessions spaced one week apart due to lack of anesthesia, patient received single MECT session (5 seizures)	Self	Blood pressure, pulse during procedure Observed clinical outcome (feeding, responsiveness) and memory	Hypertension from 140/100 mg Hg to 220/160 during MECT returning to 120/80 thereafter. Tachycardia 100/min to 180/min; short run of ventricular premature contractions after 4 th seizure. Parameters for SECT: ND Took food, answered questions. Retrograde amnesia for previous few days Brief remission after each session of SECT	Lack of availability of an anesthesiologist to complete conventional ECT was “practical problem” addressed through use of ECT (conventional SECT not available with the required frequency)