PROCEDURE (VIDEO)
ELECTRODE PLACEMENT

• Bilateral (bifrontotemporal) is the “gold” standard
  • More short-term and long-term cognitive side effects
  • Start in patients with severe depression
  • Works faster, is more effective than right unilateral
• Right-unilateral
  • Fewer cognitive side effects
• Can switch mid-course
THE PROCEDURE

• Generally done as an outpatient
  • Logistically this may be problematic (distance, etc)
  • Inpatient for frail, medical comorbidities, etc
• 8-12 treatments on average for a course
SEIZURE MONITORING

Post-induction baseline

Early seizure Activity

Clonic phase

End of seizure, post-ictal suppression
ADVERSE EFFECTS
ADVERSE EFFECTS

• ECT is the safest procedure performed under general anesthesia

• Mortality rate of .02% (similar to minor surgery or childbirth)
  • 1 mortality for every 80,000 – 100,000 treatments
  • May be lower than tricyclics

• Generally very well tolerated
  • Up to 80% of patients surveyed would have the treatment again if needed
ADVERSE EFFECTS - MEDICAL

- Increased HR and BP
  - Arrhythmias
- Increased cerebral blood flow and ICP
- Prolonged seizures
- Prolonged apnea
- Nausea
- Myalgia
- Headache
ADVERSE EFFECTS - COGNITIVE

• 3 domains of memory side effects
  • Acute
  • Anterograde
  • Retrograde

• Significant variability based on individual

• Acute
  • Due to seizure and anesthesia
  • Post-ictal confusion, lasting 5 minutes to 2 hours
ADVERSE EFFECTS - COGNITIVE

• Anterograde
  • Impairment in new memories after ECT
  • Usually resolves within 4 weeks after a course of ECT
    • Gradual improvement
  • Usually improves with time

• Retrograde
  • Forgetting of memories from the time period before the course of ECT
  • Most dense for events proximal to the course of ECT
    • Some will eventually be recovered, some won’t
    • Public events > personal information
    • Some patients report more profound memory loss
    • Spotty, not complete
CONTINUATION and MAINTENANCE
RELAPSE AND RECURRENCE

• Relapse of depression after ECT is up to 50% after 6 months
  • Higher in medication resistant patients
  • Higher in elderly patients with psychotic depression

• Reduce relapse by continuing or starting antidepressants during or immediately after ECT

• Nortriptyline and lithium
  • Relapse at 24 weeks with placebo 84%, nortriptyline 60%, nortriptyline +lithium 39%
  • Most relapses occur within the first month post ECT

Sackeim 2001
INDICATIONS FOR MAINTENANCE

• ECT is a treatment for a chronic condition, just as medications and therapy are.

• Goal is to treat index episode and prevent relapse (“same” episode within the first 6 months following remission) and recurrence.

• Maintenance or continuation ECT combined with medications is likely more efficacious than either treatment alone.

Rabheru 2012
FOLLOW UP

• Patients are seen by ECT psychiatrist each morning prior to the procedure
• ECT psychiatrist and outpatient provider remain in contact about medications and progress with treatment
• Close psychiatric follow up by outpatient provider is needed to monitor for re-emergence of symptoms
CONTINUATION & MAINTENANCE

- Continuation ECT – given within 6 months of original treatment course
  - Prevents relapse
  - A taper (weekly treatment for several weeks) may help to reduce early relapse, taper may then extend out to monthly treatments
- Maintenance ECT – continues beyond 6 month period to prevent recurrence (a “new” episode)
  - Patients who experience depression with ECT discontinuation
- Risks of ongoing ECT treatments – similar to index treatment course but given that treatments are more spaced out, cognitive side effects may be less pronounced
WHO MAY BENEFIT FROM ONGOING ECT

- Patients who respond to an acute course of ECT when:
  - Pharmacotherapy cannot be safely administered
  - Patient prefers treatment with ECT with a responsive illness
- Literature mostly limited to retrospective studies and case reports, with more research needed in this area

Petrides 2011
MAINTENANCE ECT IN SCHIZOPHRENIA

- Reduces number of hospitalizations and number of days hospitalized
- Generally used in conjunction with antipsychotic medications, in patients for whom pharmacotherapy alone has not been adequate
- Retrospective study of acute ECT followed by maintenance ECT in elderly patients with severe mental illness cut hospitalizations from 1.88 in pre-ECT period to 0.38 during average 34 month period of maintenance ECT treatments, and reduced days of hospitalization from 215 to 12.4

Shelef 2015
MAINTENANCE ECT IN MAJOR DEPRESSION

- Multiple studies have found reduction in number of hospitalizations and hospital days from pre-maintenance to maintenance ECT period.
- Time to recurrence lengthens in patients treated with maintenance ECT alone or combined with medications.
- CORE trial randomized 201 patients with remitted MDD to pharmacotherapy of lithium + nortriptyline or 10 sessions of maintenance ECT.
  - No statistically significant difference between survival and time to relapse in the 2 groups.
  - Sustained remission rates were 46.1% for maintenance ECT and 46.3% for maintenance pharmacotherapy, relapse rates were 37.1% and 31.6% respectively.

Rabheru 2012
Kellner 2006
ECT AVAILABILITY IN THE REGION

- OHSU
- Kaiser
- Out-of-state options – Seattle
- Demand exceeds supply
CONCLUSIONS

• ECT is a safe and highly effective treatment for a variety of psychiatric illnesses
• ECT should be considered earlier in the course of treatment for patients with severe illness
• Many patients benefit from ongoing ECT treatments combined with medications to achieve long-term remission
QUESTIONS

THANKS FOR LISTENING!
REFERENCES

• Kellner, C et al. Continuation electroconvulsive therapy vs pharmacotherapy for relapse prevention in major depression: a multisite study from the Consortium for Research in Electroconvulsive Therapy (CORE). *Arch Gen Psychiatry.* 2006 Dec;63(12):1337-44.


REFERENCES


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