

# UVM Project ECHO: Adult Complex Mental Health

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# “Introduction” to ZOOM

- Please mute microphone when not speaking
- Please use camera as much as possible
- Test both audio & video before joining
- Communicate clearly during session:
  - Can use “raise hand” feature to comment
  - Use chat function for questions, comments or technical issues



# RECORDING OF SESSION TO BEGIN

# Series Objectives

**Learning objectives for this ECHO series include the ability to:**

- Enhance diagnostic skills in patients with complex mental health issues
- Incorporate new treatment strategies into management of common but challenging mental health disorders
- Improve the care that patients with mental health issues receive in the primary care setting

# Session Agenda

- Welcome
- Objectives
- Didactic Presentation (30-35 min)
- Case presentation(s)
  - Clarifying questions
  - Participants – then faculty panel
- Discussion
- Recommendations
- Closing Announcements
  - Submission of new cases
  - Completion of evaluations



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This activity was planned by and for the healthcare team, and learners will receive 1.5 Interprofessional Continuing Education (IPCE) credit for learning and change.

Participants should claim only the credit commensurate with the extent of their participation in the activity.

# CMIE Disclosures

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# UVM Project ECHO: Role of ECT in Complex Adult Mental Health Care

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Professor of Psychiatry, LCOM, UVM  
March 16, 2022



# Session Objectives

**Learning objectives for this ECHO session include the ability to:**

1. List several intensive treatment options for resistant depression.
2. List several indications for treatment with electroconvulsive therapy (ECT).
3. Describe the role of ECT in the treatment of resistant depression.

# Resistant Depression

- Symptoms of depression
- Burdensome to the patient
- Interfering with function
- Not “new” to treatment
- Psychotherapy/pharmacotherapy/both
- For our purposes today, also not psychotic or cognitively impaired (but please do check)
  
- “Failure to achieve remission after two well-established anti-depressant treatment courses known to have been of EB acceptable dose and duration” -- Greden et al, U Mich Depression Center

# Severe Depression, Treatment Resistant/Complicated

# Example #1

- RJ is a 52 year-old currently disabled IT support specialist who has been unable to work for the last 3 months due to the severity of the current depressive episode. He has struggled with depression since he was a university student but most of the time he has been able to function. He has missed work due to depression previously, but never for this length of time. He has continued to keep appointments with his personal physician and his therapist but has otherwise been fairly isolated. Pharmacotherapy has been extensive, over time, and he has had two more evidence-based medication trials during the last 3 months.

# Example #2

- LM is a 36 year-old community-living woman who has struggled with the symptoms of schizoaffective disorder since age 22. Symptoms have worsened over time. She experiences mood cycling, and is depressed much more often than mood elevated. She hears voices, which have become more intrusive and threatening during recent months. Suicidal ideation has been present for years without suicide attempts; however, she has confided to her mother that it is getting harder and harder to go on living.

# Example #3

- KT is a 78 year-old retired engineer who has been widowed for 6 years. He has always been active, participating in bridge club, church activities and his university alumni club. During approximately the last 6 months, he has become much less active and has been complaining about a variety of somatic symptoms, primarily constipation and indigestion. He is leaving his home less frequently and some days has been staying in bed. His daughters have become very concerned.

# Example #4

- PC is a 19 year-old student who has been admitted to inpatient psychiatry with a major depressive episode that has developed psychotic features. She has been taking medication and participating in therapeutic activities. On rounds, she is found lying supine, staring at the ceiling. When her arm is raised and let go, it drifts very slowly back to her side.

# Resistant Depression: Intensive Treatment

- Intensive Outpatient Treatment (IOP)
  - UVMHC Seneca Center, Crossroads, etc.
- Addiction treatment (if substance use disorder(s) are contributing)
  - Residential
  - IOP
- Ketamine/esketamine
- Neurostimulation/Neuromodulation
  - TMS
  - ECT
  - Possibly other modalities



# Ketamine/esketamine

- Mechanism of action not definitely known
  - Opioid receptor agonist, NMDA receptor agonist, AMPA receptor activation, cingulate cortex activation, increase in connectivity between the insula and the default network, neuronal endothelial growth factor signaling, etc.
- Rapid but possibly short-term relief of suicidal ideation
- Administration by multiple routes
  - IV 1-3 times weekly for up to 6 weeks
  - Intranasal: 56 mg, then 84 mg if tolerated, 2x/wk x 4, then weekly x 4, then every 1-2 wks
- SE:
  - Short-term: Dissociation, dysphoria, HTN, N/V, dizziness, HA, blurred vision
  - Long-term: Hepatotoxicity, neurotoxicity, bladder toxicity, abuse/diversion
- Not much data yet re: continuation/maintenance treatment
- Many unknowns, but can be very beneficial to some people

# ECT (etc.)

- Should be considered if several medication trials w/o sufficient effect
  - Consider other factors, such as discussed in the Resistant Depression session
- Or if depression is life-threatening, catatonic features, etc.
- May be effective even if other factors are present, though in that case would likely not be a sole modality

# Options

- TMS
  - Approved re: MDD and at least one failed trial of pharmacotherapy; OCD (some); smoking cessation (some). Used off label for many other illnesses.
  - Usually have had multiple trials and often other modalities
  - Evidence for effect re: a variety of disorders but few approved indications currently
- ECT
  - FDA Class II for MDD, bipolar depression, catatonia (adol/adult) TR or needing rapid response due to severity of the psychiatric or medical condition
  - Should be considered if 2-3 medication trials w/o sufficient effect or if significant functional impairment
  - Or sooner if depression is life-threatening, severe suicidality, psychosis, catatonic features, etc.
  - May be effective even if other factors are present, though in that case would likely not be a sole modality
- Other modalities, evidence of variable quality

# A word about the Stanford Protocol

- Stanford Accelerated Intelligent Neuromodulation Therapy (SAINT)
- Now known as Stanford Neuromodulation Therapy (SNT)
- A novel program of administering TMS
- Encouraging results in an open label study (n=21) and a randomized double-blinded sham-controlled trial (active n=14, sham n=15) for resistant depression
- Not yet widely available

# Electroconvulsive Therapy (ECT)

# ECT: Effects/Possible Mechanisms of Action

- Monoamine hypothesis >> release of dopamine, serotonin, norepi, other neurotransmitters; desensitization pre-synaptic adrenergic auto-receptors
- Neuroendo effects >> Release of TSH, ACTH, endorphins, prolactin
- Anticonvulsant properties >> GABA, etc.
- Neurotrophic hypothesis >> neurogenesis (brain structural plasticity) and increase in neurotrophic signaling. Increase in BDNF. Increases in gray matter volume and cortical thickness, esp amygdala and hippocampus.
- Changes in connectivity (fMRI)
- Changes in metabolic activity, frontal and cingulate cortices (PET)
- Increased slow (delta) wave activity in the prefrontal cortex (quant EEG)
- Genetic factors may influence responsiveness

# ECT: Usual Indications

- Major depressive episode
  - Life-threatening
  - Impairing functioning
  - Psychotic
  - Treatment resistant
- Bipolar depression or mania, severe or treatment resistant
- Schizoaffective disorder (features such as above)

# Acute Indications: Life-threatening Illnesses

- Catatonia
- Refractory NMS
- Treatment resistant depression requiring nutritional/fluid support



# Acute Indications: Increased Suicide Risk

- **Severely increased suicide risk.** See Ronnqvist et al, 2021:
- Severely depressed patients, n = 5525 in ECT group and no-ECT group
- 12 mos >>> 1.1% ECT group and 1.6% no-ECT suicided; HR = 0.72
- Patients with psychotic features, HR = 0.20 (0.08 – 0.54)
- Patients aged 45-64, HR = 0.54 (0.30 – 0.99)
- Patient aged 65 +, HR = 0.30 (0.15 – 0.59)
  
- JAMA Netw Open. 2021;4(7):e2116589. Epub 2021 Jul 1

# Pre-ECT Evaluation

- Full consultation
  - Evaluation of depression and/or other psychiatric illness
  - Past psychiatric history, treatments tried, results. [Collateral information?]
  - Current treatment and support
- Informed consent, quite detailed for this treatment, esp in Vermont
- Pre-procedure (pre-anesthesia) medical evaluation
- Logistical arrangements, including transportation
- Pre-procedure covid test

# The Process of ECT

- Pre-medication, if needed (ketorolac, ondansetron, Bblocker)
- Brief general anesthesia by IV admin (methohexital or other agent)
- Muscle relaxation, usually with succinylcholine
- Stimulus, 6-8 seconds (after titration via table/algorithm)
- Seizure duration at least 15-20 seconds
- Metabolism of above agents; anesthetic wears off last
- PACU, home

# Potential Side Effects of ECT

- “Nuisance” effects (headache, muscle soreness, nausea)
- Mouth injury (uncommon, due to oral protection)
- Seizure-related injury (rare due to the profound muscle relaxation)
- Transition to hypo/mania (as with other ant-depressant treatments)
- Cognitive effects (especially retrieval, attention)
- Major risks (cardiopulmonary events, death)
- Risk of death is  $< 1$  per 10000 ( $< 1$  per 100000 in 9 studies 2002+,  $> 400000$  treatments), due to anesthesia risks rather than seizure risks
  
- Stigma  $\ggg$  actual risk

# Monitoring Treatment Response

- Patient report and collateral information
  - Target symptoms
  - Level of functioning
  - “You may look better before you feel better; others may notice first.”
- Standardized instrument such as MADRS or QIDS
  - Weekly or each session if less frequently
- Cognitive assessment, subjective and objective
  - Folstein MMSE, MOCA or SLUMS
  - Patient impression

# Stopping ECT and Post-treatment Care

- Response complete or improvement plateaus
- Burdensome side effects or patient preference
  
- Stop or taper frequency of treatment
  
- Continue multi-modality treatment post ECT:
- Pharmacotherapy. Consider:
  - Venlafaxine + augmenting lithium (ECT PRN) [McCall et al, PMID 29195125]
  - Nortirptyline + augmenting lithium [Sackeim et al, PMID 11255384]
- Maintenance ECT may be the best option in some cases

# Conclusions/Take-Home Points

1. When depression is not getting better, “Do something different.” Usually this will be an intensive modality.
2. ECT is a reasonable option in many cases in which pharmacotherapy and psychotherapy have been unsuccessful.
3. ECT remains a reasonably safe and effective option in many cases.
4. Myths and stigma about ECT often require discussion.

# ECT Resources for Patients

- Video: “ECT: Treating Severe Depression” (Dartmouth-Hitchcock)
- <https://isen-ect.org>
- <https://www.psychiatry.org/patients-families/ect>
- Up To Date has 2 patient handouts



# CONCLUSIONS

- Slides are posted at [www.vtahec.org](http://www.vtahec.org)
- Volunteers to present cases (this is **key** to the Project ECHO model)
  - Please submit cases to [Mark.Pasanen@uvm.edu](mailto:Mark.Pasanen@uvm.edu)
- Please complete evaluation survey after each session
- Once your completed evaluation is submitted, CE information will be emailed.
- Please contact us with any questions, concerns, or suggestions:
  - [Mark.Pasanen@uvm.edu](mailto:Mark.Pasanen@uvm.edu)
  - [Elizabeth.Cote@uvm.edu](mailto:Elizabeth.Cote@uvm.edu)