“The Early Bird Gets the Worm”: Case Comparison of Early ECT Intervention in Two ‘Parallel’ Patients with NMDAR Encephalitis with Ovarian Teratoma

PRESENTERS:
Dakota May, MD
Bryan K Lao, MD

Background:

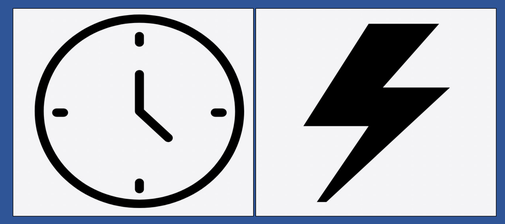
- Electroconvulsive therapy (ECT) continues to be an essential consideration in the treatment of anti-NMDA receptor (NMDAR) encephalitis.
- Best Strategy for ECT deployment is not well understood (Coffey 2016).
- This comparison showcases two patients with similar presentations of NMDAR encephalitis and their disparate outcomes.
- We hypothesize that the early introduction of neuromodulation accounts for the differences between these two patients.

Case History:

- Two young females presented with new-onset neuropsychiatric symptoms and a subsequent diagnosis of NMDAR encephalitis.
- Received immunosuppressive agents, underwent oophorectomy for ovarian teratomas, and received ECT for malignant catatonia.

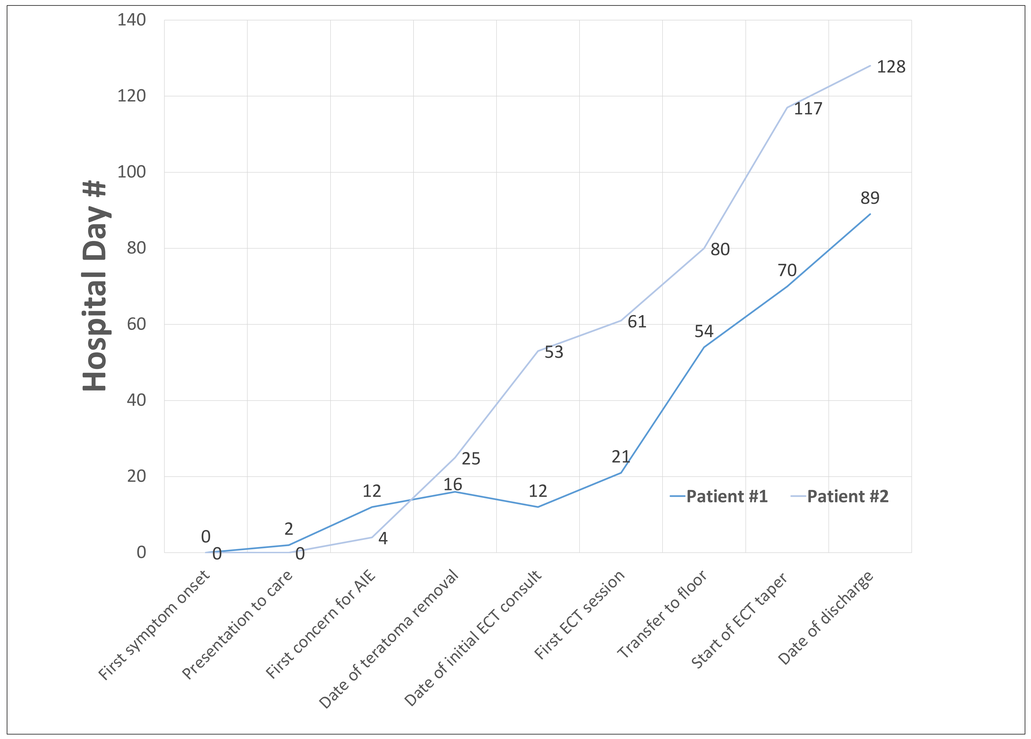
- **Patient #1** was a 24-year-old female who received a lorazepam peak of 82 mg/24 hours and underwent ECT on day 21 from symptom onset lasting 49 days.
- NMDAR AB IF Titer Assay, CSF: 1:128 (high)
- Immunomodulation: high dose steroids, IVIG, rituximab
- Psychiatric symptoms resolved, she had complete functional recovery within 1 year and she did not require maintenance ECT.

- **Patient #2** was a 38-year-old female who received a lorazepam peak of 74 mg/24 hours and underwent ECT on day 61 from symptom onset lasting 56 days.
- NMDAR AB IF Titer Assay, CSF: 1:10 (low)
- Immunomodulation: high dose steroids, PLEX, cyclophosphamide, rituximab,
- Significant medical morbidity (tracheostomy, PEG tube, delirium), and only partial return to premorbid functional status.



- Early ECT in patients with NMDAR encephalitis with catatonia may lead to improved clinical outcomes

Hospital Course:



AUTHORS:
Dakota T May, MD
Bryan K Lao, MD
Sophie Fourniquet, MD
Jonathan R. Komisar, MD
Jacob Feigal, MD

DukeHealth

Discussion:

- Synergistic use of ECT with first-line immunotherapy may help to improve recovery times with shorter hospital stays (Tanguturi 2019).
- Dysautonomia in NMDAR encephalitis should be considered as part of a catatonic syndrome
- Early implementation of ECT in promoting functional recovery.
- Concomitant use of high dose benzodiazepines and ECT in these cases support the hypothesis that these therapies are synergistic in the treatment of NMDAR encephalitis (Tanguturi, 2019).
- We hypothesize that prolonged encephalitis, depleted physical reserve, and poor nutritional intake result in further neurotoxicity responsible for lingering debility.
- Given the overall safety and tolerability of ECT in these patients (Warren 2019), early implementation of ECT may reduce neurotoxicity, reduce medical morbidity, and promote recovery.

Conclusion:

- ECT continues to be an important treatment option for patients with NMDA-R encephalitis, particularly those with a catatonic syndrome.
- Earlier recognition and initiation of ECT in these patients may improve cognitive and functional recovery, though more research is necessary.
- Clinicians should consider the role of ECT early in the treatment of these patients.
- Continued emphasis on the role of interdisciplinary care between neurology and psychiatry will remain central in improving patient outcomes.

References:

1.Coffey MJ, Cooper JJ. Electroconvulsive Therapy in Anti-N-Methyl-D-Aspartate Receptor Encephalitis: A Case Report and Review of the Literature. J ECT. 2016 Dec;32(4):225-229. doi: 10.1097/YCT.0000000000000334. PMID: 27295461.

2.Tanguturi YC, Cundiff AW, Fuchs C. Anti-N-Methyl d-Aspartate Receptor Encephalitis and Electroconvulsive Therapy: Literature Review and Future Directions. Child Adolesc Psychiatr Clin N Am. 2019 Jan;28(1):79-89. doi: 10.1016/j.chc.2018.07.005. Epub 2018 Aug 24. PMID: 30389078.

3.Warren N, Grote V, O'Gorman C, Siskind D. Electroconvulsive therapy for anti-N-methyl-d-aspartate (NMDA) receptor encephalitis: A systematic review of cases. Brain Stimul. 2019 Mar-Apr;12(2):329-334. doi: 10.1016/j.brs.2018.11.016. Epub 2018 Dec 4. PMID: 30528383.