Autoimmune Encephalitis in Young Adults and Youth: The Importance of Consultation-Liaison Psychiatry Advocacy

Abram Estafanous, DO[1], Elliot Melaney, MD[1], Jayinee Basu, DO[1], Olusola Segun, MD[1], Xavier Jimenez, MD[2]

[1]Staten Island University Hospital, Department of Psychiatry, Northwell Health, Staten Island, NY

[2]Long Island Jewish Medical Center, Department of Psychiatry, Northwell Health, New Hyde Park, NY

Staten Island University Hospital Northwell Health

Background

Autoimmune encephalitis (AE) is an immune-mediated disorder that frequently presents with new-onset neuropsychiatric symptoms along with unremarkable routine imaging and lab work. This may lead to inaccurate diagnosis of primary psychiatric disorders or mistakenly attributing symptoms to decompensation of primary psychiatric disorders. In populations where primary psychiatric disorders typically start (i.e., young adults, adolescents, and children), differentiating AE from psychiatric conditions is even more of a challenge due to the similarities of clinical symptoms (Celluci et al., 2020). Consultation-liaison (C-L) psychiatrists may play an important role by recognizing the clinical syndrome and advocating for appropriate workup of AE despite the presence of acute psychiatric symptoms..

Autoimmune Encephalitis International Working Group 2020 proposed classification guide for pediatric AE (Celluci et al., 2020):

1. **Psychiatric and/or neurologic symptom onset within 3 months in a healthy child**
2. **2 or more signs of neurologic dysfunction:**
   - Altered mental status or slowing or epileptiform activity
   - Focal neurologic deficits
   - Cognitive difficulties
   - Acute developmental regression
   - Movement disorder (except tics)
   - Psychiatric symptoms
   - Seizures
3. **Paraclinical evidence for inflammation**
   - CSF inflammatory changes
   - MRI features of encephalitis
   - Brain biopsy showing inflammatory infiltrates
4. **Autoantibodies in serum and/or CSF**
5. **Exclusion of other causes**

Methods

A retrospective review of the medical records of 4 patients diagnosed with and treated for AE at a tertiary care center between 2019 and 2022 was conducted.

	Case 1	Case 2	Case 3	Case 4
Patient	20-year-old female with no past psychiatric history	9-year-old male with past psychiatric history of autism spectrum disorder	16-year-old female with a history of developmental disability and past psychiatric history of conversion disorder	17-year-old female with a past medical history of acute lymphocytic leukemia and past psychiatric history of catatonia 1 month prior
Presentation	1 week of new-onset: - Auditory hallucinations and delusions - Disorganized and aggressive behavior and seizures - Autonomic instability (e.g., fever, tachycardia)	5 days of new-onset: - Agitation and self-injurious behavior - Disorganized behavior and seemingly purposeless activity - Altered mental status	1 day of new-onset: - Behavioral outbursts and aggressive behavior - Altered mental status - Motor and vocal tics	5 days of new-onset: - Mood lability and suicidal ideation - Altered mental status, delusions, paranoia, and disorganized though process - Bizarre and impulsive behavior and reduced verbal communication
Imaging & Other Studies	**CT Head non-cont**: unremarkable **MRI Head non-cont**: unremarkable **Pelvic U/S**: unremarkable **vEEG**: Focalized and generalized slowing **Transvaginal U/S:** right ovarian teratoma	*No head imaging is performed as patient had unremarkable non-contrast CT Head and MRI Head 3 months prior. **vEEG**: unremarkable	**MRI Head w/w/out cont**: cortical volume loss and lateral ventricular dilation out of proportion for patient's age.	*No head imaging is performed as patient had unremarkable non-contrast CT Head and MRI Head 3 months prior. **PET scan**: demonstrates frontotemporal and right and left anterior cingulate hypermetabolism as well as occipital hypometabolism.
CSF/Serum Antibodies	**CSF**: NMDA-receptor antibodies	**Serum**: NMDA-receptor antibodies	**Serum**: anti-VGKC antibodies	**CSF**: anti-VGKC antibodies
Treatment & Outcome	**IVIG** and **Laparoscopic salpingoopherectomy** resulted in complete symptom resolution.	**IVIG** resulted in symptom Improvement and return to baseline.	**IVIG** resulted in symptom improvement and return to baseline.	**IVIG** resulted in improvement of mood, behavior, and mental status and return to baseline.

Discussion

These cases demonstrate the importance of recognizing the clinical syndrome of AE. In each of these cases, recognition allowed the C-L psychiatrist to advocate to the primary medical team, other consulting teams, and outpatient providers for appropriate medical workup and treatment. This assisted in making a correct diagnosis and prevented unnecessary inpatient psychiatric hospitalization and antipsychotic use that may have led to adverse events such as neuroleptic malignant syndrome (Sarkis et al., 2019).

- **Case 1**: Despite negative initial head imaging and the presence of psychiatric symptoms that may suggest a primary psychotic disorder, recognition of co-occurring symptoms allowed advocacy to the medicine and OBGYN teams to consider AE and proceed with an LP and transvaginal U/S for diagnosis and IVIG and laparoscopic salpingoopherectomy for treatment.
- **Case 2**: The C-L team recognized that the new-onset behavioral disturbance in a patient with autism spectrum disorder and altered mental status (AMS) likely indicated an underlying medical issue. As a result, the C-L psychiatrist advocated for further inflammatory workup.
- **Case 3**: The C-L psychiatrist recognized that AMS and new-onset behavioral and movement disturbance, along with MRI showing cortical volume loss, may indicate AE. As a result, the C-L psychiatrist advocated for further inflammatory workup.
- **Case 4**: The C-L team maintained AE high on the differential from the initial admission given the presence of AMS, worsening psychosis, and potential that catatonia from 1 month prior may have been a sequela of underlying AE.

Conclusion

By recognizing the clinical syndrome of AE in young patients with new-onset neuropsychiatric symptoms, C-L psychiatrists may advocate for appropriate medical workup and treatment, which may ultimately reduce the rates of incorrect diagnosis and improper treatment.

References

Celluci T, Van Mater H, Graus F, Muscal E, Gallentine W, Klein-Gitelman MS, Benseler SM, Frankovich J, Gorman MP, Van Haren K, Dalmau J, Dale RC. Clinical approach to the diagnosis of autoimmune encephalitis in the pediatric patient. Neurol Neuroimmunol Neuroinflamm. 2020 Jan 17;7(2):e663. doi: 10.1212/NXI.0000000000000663. Erratum in: Neurol Neuroimmunol Neuroinflamm. 2020 Apr 15;7(4): PMID: 31953309; PMCID: PMC7051207.

Sarkis RA, Coffey MJ, Cooper JJ, Hassan I, Lennox B. Anti-N-Methyl-D-Aspartate Receptor Encephalitis: A Review of Psychiatric Phenotypes and Management Considerations: A Report of the American Neuropsychiatric Association Committee on Research. J Neuropsychiatry Clin Neurosci. 2019 Spring;31(2):137-142. doi: 10.1176/appi.neuropsych.18010005. Epub 2018 Dec 18. PMID: 30561283.