Evaluation and Management of Autoimmune Encephalitis

A Clinical Overview for the Practicing Child Psychiatrist

GenaLynne C. Mooneyham, MD, MS[a,b,*], William Gallentine, DO[c], Heather Van Mater, MD, MS[d]

KEYWORDS

• Autoimmune encephalitis • Autoimmune brain disorders • Antineuronal antibodies • Anti-NMDA • Limbic encephalitis

KEY POINTS

- Autoimmune encephalitis often presents with neuropsychiatric symptoms, including but not limited to cognitive decline, paranoia, hypervigilance, sensory perceptual disturbances, and personality changes.
- Child psychiatrists must become familiar with autoimmune encephalitis because they may be the initial evaluator of children presenting with what may be otherwise misconstrued as purely psychiatric symptoms.
- The treatment of autoimmune encephalitis often includes immunomodulatory therapies to achieve symptom resolution or improvement.
- Child psychiatrists may be called on to advocate for their patients within the larger system to obtain the multidisciplinary evaluations necessary for treating autoimmune encephalitis.
- Residual symptoms of autoimmune encephalitis often require treatment aimed at symptom reduction with ongoing management even in the postinflammatory period.

The authors have no conflicts of interest to disclose.

[a] Department of Psychiatry, Division of Child and Family Mental Health and Developmental Neurosciences, Duke University, Durham, NC, USA; [b] Autoimmune Brain Disease Program, Department of Pediatrics, Duke University, Durham, NC, USA; [c] Autoimmune Brain Disease Program, Department of Pediatrics, Neurology Division, Duke University, Durham, NC, USA; [d] Autoimmune Brain Disease Program, Department of Pediatrics, Rheumatology Division, Duke University, Durham, NC, USA

* Corresponding author. Department of Child Psychiatry, Duke University Children's Hospital and Health Center, 2301 Erwin Road, Durham, NC 27710.

E-mail address: Genalynne.mooneyham@duke.edu

Child Adolesc Psychiatric Clin N Am ■ (2017) ■–■

http://dx.doi.org/10.1016/j.chc.2017.08.011 **childpsych.theclinics.com**

Abbreviations	
Anti-NMDAR	Anti–*N*-methyl-D-aspartate receptor
CSF	Cerebrospinal fluid
EEG	Electroencephalograph
GAD 65	Glutamic acid decarboxylase 65
HE	Hashimoto's encephalopathy
IV	Intravenous
IVIG	Intravenous immunoglobulin
LE	Limbic encephalitis

INTRODUCTION

The field of neuroimmunology has expanded drastically over the past decade with the recognition and categorization of antineuronal antibodies within the central nervous system. Although the diagnosis of autoimmune encephalitis dates back to the 1970s, it was only in 2005 when the first specific antibody subtype, anti–*N*-methyl-D-aspartate receptor (anti-NMDAR), was identified by Dr Josep Dalmua and his team.[1] Since that time, the number of known antibodies has substantially increased.[2] Many investigators in neuroimmunology hypothesize that there are far more antibodies yet to be identified. These antineuronal antibodies have been linked with neuropsychiatric symptoms including but not limited to the abrupt onset of personality changes, sensory perceptual disturbances, functional declines, and cognitive dulling.[3,4]

Autoimmune encephalitis is a broad diagnostic category that describes the subacute onset of neuropsychiatric symptoms whose etiology is linked with the clinical sequelae of the inflammatory response. The production of antibodies within the central nervous system or the periphery may be the result of molecular mimicry after an infectious process, systemic autoimmune disease(s), neoplasms, and/or paraneoplastic processes. Although the categorization of these antibodies is an ongoing effort, so too is the work of providing a meaningful nomenclature across the fields of psychiatry, neurology, rheumatology, and immunology.

DEFINITION OF AUTOIMMUNE ENCEPHALITIS

Encephalitis is any inflammation of the brain. There are many causes of encephalitis, of which autoimmune encephalitis is one. Autoimmune encephalitis may be best conceptualized as an umbrella term that includes several disease types. These subgroups are based on whether the presenting autoantibody is targeting the cell surface proteins, intracellular synaptic proteins, intracellular antigens, or is linked to a known paraneoplastic process.[5] In general, adults with autoimmune encephalitis diagnoses have a higher rate of association with paraneoplastic processes as compared with the child and adolescent population. According to Dalmau and colleagues, the diagnosis of autoimmune encephalitis no longer relies on the response to immunotherapy nor does it rely on a particular antibody status.[6] The topic of seronegative autoimmune encephalitis is discussed elsewhere in this article. Symptoms routinely seen in the active phase of autoimmune encephalitis include agitation, psychosis, catatonic features, delirium, seizures, changes in speech or mutism, and hallucinations. During the progression of disease, patients may begin to exhibit abnormal involuntary motor movements, respiratory compromise, decreased responsiveness progressing to coma, and autonomic dysregulation.

Diagnosis

The variability of symptoms both across and within subtypes of autoimmune encephalitis make diagnosing these conditions difficult. A high index of suspicion is required