Clinical Pathways Program

AUTOIMMUNE EPILEPSY EVALUATION AND DIAGNOSIS, ADULT, INPATIENT, GUIDELINE

Updated: February, 2022

Clinical pathway summary

CLINICAL PATHWAY NAME: Evaluation and Diagnosis of Autoimmune Epilepsy

PATIENT POPULATION AND DIAGNOSIS: Adult patients with suspected autoimmune epilepsy

APPLICABLE TO: Spectrum Health Butterworth and Blodgett

BRIEF DESCRIPTION: Approach to the evaluation of suspected autoimmune epilepsy and confirming the diagnosis.

OPTIMIZED EPIC ELEMENTS (if applicable):

IMPLEMENTATION DATE: 2021

LAST REVISED: 12/18/2020

Clinical pathways clinical approach

TREATMENT AND MANAGEMENT:

CLINICAL SUSPICION

Autoimmune epilepsy should be suspected in patients presenting with new-onset status epilepticus and/or daily/weekly seizures with cognitive and psychiatric changes.

The APE2 score (Antibody Prevalence in Epilepsy and Encephalopathy score) is a predictive model developed to help aid identifying patients in whom autoimmune epilepsy may be suspected. A positive APE2 score does not automatically diagnose a patient with autoimmune epilepsy but was designed to be used by clinicians to see if paraneoplastic testing was warranted.

Antibody Prevalence in Epilepsy and Encephalopathy score (APE2 score)	
New-onset, rapidly progressive mental status changes or seizures within 1 year of evaluation	1 point
New-onset autonomic dysfunction, such as labile blood pressure, hyperhidrosis, asystole, ventricular tachycardia, sustained bradycardia, or orthostatic hypotension	1 point
Neuropsychiatric symptoms, such as agitation, aggression, psychosis, or emotional lability	1 point
History of underlying malignancy within 5 years before onset of neurologic symptoms	2 points
Viral prodromal illness in the absence of a cancer history within the past 5 years	2 points
Faciobrachial dystonic seizures	3 points
Facial dyskinesia in the absence of faciobrachial dystonic seizures	2 points
Seizures refractory to two or more antiepileptic drugs	2 points
Cerebrospinal fluid inflammation manifest as protein > 50 mg/dL or a WBC > 5 cells/mcL	2 points
MRI findings of limbic encephalitis, including T2/FLAIR (fluid attenuated inversion recovery) signal hyperintensity in one or both temporal lobes, or multifocal grey/white matter lesions consistent with inflammation or demyelination	2 points

Dubey et. al "Predictive models in the diagnosis and treatment of autoimmune epilepsy" Epilepsia. 2017

DIAGNOSIS OF AUTOIMMUNE EPILEPSY

The APE2 score of more than or equal to 4 (four) has a sensitivity for neural-specific antibodies positivity of 98% (specificity about 84%). Very low APE2 scores, on the other hand, can be useful in identifying patients who are more likely to have a negative neural-specific antibody.

DIAGNOSTIC EVALUATION

The following should be performed on all patients with possible autoimmune epilepsy (APE2 score ≥ 4):

- Long-term EEG (≥24 hours): looking for evidence of electrographic evidence of cerebral dysfunction or epileptogenicity (e.g: generalized or focal slow activity, ictal or interictal epileptiform discharges, extreme delta brush pattern, LPDs, GPDs), and clinical features associated with certain syndromes (e.g. brachiofacial dystonic seizures, dyskinesias).

- 3T MRI using the epilepsy protocol: MRI findings of limbic encephalitis, including T2/FLAIR signal hyperintensity in one or both temporal lobes, or multifocal grey/white matter lesions consistent with inflammation or demyelination
- CSF analysis including cell count and differential, protein, viral panel, culture, IgG index, oligoclonal and autoimmune epilepsy panel (*Mayo Clinic TESTID: EPC2*). If indicated, additional tests can be included such as cytology.
- Cardiac telemetry to evaluate for arrhythmias such as sustained bradycardia, asystole, and ventricular tachycardia.

The following should be performed in all patients with probable or confirmed autoimmune epilepsy:

- Screening for Malignancy: CT chest/abdomen/pelvis should be considered for initial evaluation. For patients suspected to have scrotal ultrasound, transvaginal sonography and pelvic MRI for certain patients with suspected paraneoplastic syndromes. If initial imaging is negative, and there remains high suspicion for a paraneoplastic process, whole-body positron emission tomography (PET) should be considered.
- Neuropsychiatric evaluation.
- Orthostatic vital signs.

Pathway information

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EXPERT IMPROVEMENT TEAM (EIT): Neurosciences/Epilepsy

CLINICAL PRACTICE COUNCIL (CPC): Neurosciences

CPC APPROVAL DATE: 2021 & February 2022

OTHER TEAM(S) IMPACTED: Neurohospitalist service

References

1. Dubey D, Singh J, Britton JW, et al. Predictive models in the diagnosis and treatment of autoimmune epilepsy. *Epilepsia*. 2017;58(7):1181-1189. doi:10.1111/epi.13797

2. Husari KS, Dubey D. Autoimmune Epilepsy. *Neurotherapeutics*. 2019;16(3):685-702. doi:10.1007/s13311-019-00750-3

3. Quek AM, Britton JW, McKeon A, et al. Autoimmune epilepsy: Clinical characteristics and response to immunotherapy. *Arch Neurol*. 2012;69(5):582-593. doi:10.1001/archneurol.2011.2985