

CT Children's CLASP Guideline

Neuroirritability

INTRODUCTION

Neuroirritability is defined as persistent or recurrent episodes of pain behaviors which, after assessment and management of potential nociceptive sources, can most likely be attributed to abnormal signaling of the central nervous system. Neuroirritability is frequently associated with other comorbid conditions (e.g., prematurity, hypoxic brain injury, genetic syndromes, developmental and communication delays, autonomic storming), and is very unlikely to be seen in neurotypical children. Although neuroirritability can present at any time, patients most commonly present during the newborn period, at the onset of adolescence, or in relation to neurotrauma that may happen later in life.

Neuroirritability is often challenging to diagnose and treat given the frequency of comorbid conditions. Additionally, there is a lack of literature regarding this condition, which contributes to its under-recognition and treatment.

INITIAL EVALUATION

TARGETED HISTORY & PHYSICAL EXAM:

- Take detailed history with focus on sleep/night and schedule/patterns of symptoms
- Symptoms may present as: inability to soothe, difficulty falling or staying asleep, frequent moaning or crying
- Neuroirritability is a diagnosis of exclusion after ruling out potential alternative causes, such as (but not limited to):

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| Infection | Metabolic derangements |
| Constipation/gas | Delirium |
| Dehydration | Autonomic dysfunction |
| Muscle spasm | Visceral hyperalgesia |
| Dyspnea | Neuropathic pain |
| Gallstones | Seizures |
| Pancreatitis | Nephrolithiasis |
| Dental issues | Joint subluxation or occult fracture |

- Evaluation may include abdominal US or X-ray, cranial US, EEG and/or CBC/CMP, depending on clinical concerns.

MANAGEMENT

INITIAL MANAGEMENT:

- Consider referral to **Birth to Three** and/or **Child Psychiatry** as appropriate
- Review patient's current medications, as certain interactions can cause signs/symptoms of neuroirritability
- Consider initiation of **gabapentin** as *first line*
 - Starting dose: 5 mg/kg PO q night (max 300 mg/dose)
 - If suboptimal improvement after 1 week, add a 5 mg/kg dose in the morning
 - If suboptimal improvement after another week, add a 5 mg/kg dose mid-day
 - May titrate in 5 mg/kg/day increments on a weekly basis to optimal effect (max 72 mg/kg/day)

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| | <ul style="list-style-type: none"> ○ Adverse effects: fatigue, brain fog ○ If on antiepileptic therapies: Support communication with neurology to collaborate and clarify need for monitoring serum antiepileptic levels |
| WHEN TO REFER | <p>ROUTINE REFERRAL: Patient should be seen within 8 weeks by Pain and Palliative Medicine if above care is not helpful.</p> <p>URGENT REFERRAL: Patient should be seen within 7 days by the specialist if symptoms are unmanageable at home. Provider may also call to speak with specialist with questions.</p> |
| HOW TO REFER | <p>Referral to Pain and Palliative Medicine via CT Children's One Call Access Center Phone: 833.733.7669 Fax: 833.226.2329 Appointments available in Hartford only at this time. For more information on how to place referrals to Connecticut Children's, click here.</p> <p>To speak with a specialist during daytime hours, may contact the Pain and Palliative Medicine provider at 860-837-5207</p> <p><i>Information to be included with the referral:</i></p> <ul style="list-style-type: none"> ▪ Pertinent history and exam findings ▪ Pertinent imaging and/or lab results ▪ Current or previous medication trials |
| WHAT TO EXPECT | <p>What to expect from CT Children's Visit:</p> <ul style="list-style-type: none"> ▪ Review of history and physical ▪ Review of previous evaluation and medication history ▪ Discussion of further evaluation and treatment options |