Pediatric Collaborative Care Behavioral Health Conference 2024-2025

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Thank you!

Evidence-Based Treatments For Management of Pediatric Tic Disorders

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1/21/2025

Learning Objectives

1. Define common tic disorders in children
2. Compare benign tics from other stereotyped behaviors and tic mimics
3. Identify the recent recommendations for pharmacologic management of tic disorders in children
4. Determine when to refer children with tic disorders to a neurologist or psychiatrist.

Pediatric Tic Disorders: Epidemiology

- Tics are the most common movement disorder seen in children
  - At least 20% of children will have a tic at some point
  - 0.5 – 1% of children develop Tourette Syndrome
- Motor tics usually start first, such as facial grimacing or eye blinking
- Vocal tics may include sniffs, throat clearing, humming
  - Coprolalia = a tic that involves the involuntary utterance of obscene words or socially inappropriate language. This is relatively **uncommon**.
- Children often have a premonitory urge
- Tics may occur during sleep, especially in children with Tourette syndrome

Tic Disorders: DSM-V Definitions (2022)

- **Tourette Syndrome:**
  - 2 or more motor tics and 1 or more vocal tics for > 1 year in duration, onset < 18 years.
- **Persistent (Chronic) Vocal or Motor Tic Disorder:**
  - Motor **or** vocal tics for > 1 year in duration, onset < 18 years
- **Provisional (Transient) Tic Disorder:**
  - Motor (or vocal) tics for < 1 year in duration, onset < 18 years

Tics change over time

- Most tics start between 4-8 years of age
- Peak around 10-12 years of age
- Children that are eventually diagnosed with Tourette Syndrome generally have an earlier onset of tics
- Adolescence is variable
  - Can stabilize
  - Can get worse
    - Anxiety/Mood
    - Medications
    - Head injuries

Tics usually improve in adults

- Self-report study of 15-25 year olds who had tics as a child (Erenberg, 1987)
  - Disappeared 26%
  - Lessened considerably 47%
  - Unchanged 14%
  - Worsened 14%
- Longitudinal video assessment (Pappert 2003)
  - Some adults reported themselves to be tic-free, but half of these still had tics on video when recorded alone
  - Other studies with direct observation showed persistence in tics in up to 90% of patients

Diagnostic Evaluation for tic disorder

- Diagnosis is typically made by clinical symptoms and observation.
- MRI brain: Normal/ Not needed
- EEG: Normal/ Not needed
- May consider ceruloplasmin (Wilson's disease)
- Screen for mood disorders, anxiety, OCD, ADHD

Comorbid or Premorbid disorders

- Many people with tics, especially most patients with Tourette Syndrome (TS) also have other symptoms.
- Some comorbidities predate tics onset:
  - Hirschtritt *et al.* (JAMA Psychiatry, 2015) retrospectively dated the onset of various psychiatric disorders in a large sample of patients with TS
    - Median age of onset was earlier for Attention-Deficit/Hyperactivity Disorder (ADHD), disruptive behavior disorders, and elimination disorders (age 5) than for TS (age 6)
    - Anxiety disorders and obsessive-compulsive disorder (OCD) had a later median age of onset (~age 7) in many TS patients

More than just tics

- 30% of children have tics with no other co-morbidities
  - Often high achieving
- 70% of children will have
  - Attention Deficit Disorder +/-Hyperactivity
  - Obsessive Compulsive Disorder
  - Difficult time with social interactions
- Co-morbidities are often more concerning to family than tics

Tic mimics: Stereotypies

- Typical onset before age 3 and typically resolve with age
- Often bilateral hand movements when excited
- Distractable, do not bother the patient, and do not need treatment
- Can co-occur with tics
- Meige and Feindel (1902):
  - Stereotypies: Illogical movements without an irresistible urge
  - Motor tics: acts that are impelling but not impossible to resist
- Often co-occur in children with neurodevelopmental disorders or cognitive disability

Tic mimics: Absence seizures

- Peak onset between 4 - 6 years, range 3 - 10
- Occur in about 10% of children with epilepsy
- Characterized by:
  - Brief (4-20s) spells of impaired awareness
  - 65% with automatisms (mild myoclonic movements of eyes, eyebrows, eyelids)
  - Normal development

American Academy of Neurology Consensus Guidelines (2019)

- Providing information to families about the natural history of tic disorder can help inform treatment decisions
  - Tics typically begin in childhood and demonstrate waxing and waning course
- No evidence that treating tics sooner is more effective the earlier it's started
- Watchful waiting is an acceptable choice in children without functional impairment from tics

AAN Consensus guidelines (2019)

- Comprehensive Behavioral Intervention for Tics (CBIT) is an acceptable alternative for patients who have functional impairment or want to pursue treatment for tics without pharmacotherapy.
- Education of peers and educators

CBIT and Habit Reversal Therapy (HRT)

- Habit Reversal Therapy (HRT)
  - Works best in teens and older
  - Works best with one major motor tic
  - Replace the tic with an opposite movement
  - AS EFFECTIVE AS MEDICATIONS in some children
- Cognitive Behavioral Interventions for Tics (CBIT)
  - Includes HRT
  - Great for anxiety, OCD behaviors
  - Improvements in interpersonal relations

Medications for tics

- Use “side effects” or comorbidities to guide choices:
  - ADHD + tics = Clonidine or Guanfacine
    - ***There is no contraindication to using atomoxetine or stimulants in children with tic disorders***
  - OCD + tics = Cognitive behavioral therapy considered first line treatment
    - Ensure proper treatment of OCD is established
  - Mood disorder + tics = Cognitive behavioral intervention for tics as a first line
    - Ensure proper treatment of mood disorder

Alpha Adrenergic Medications

- Clonidine 0.1 mg qAM to start
- Guanfacine 1 mg qAM to start
- Side effects: sedation, bradycardia, QTc prolongation with guanfacine XR
- Usually effective early and can titrate dose to effect
- Alpha adrenergic medications should be gradually tapered to avoid rebound hypertension

Topiramate

- Patients with mild tics that are not responding to other treatments may have improvement with topiramate.
- Side effects may include cognitive slowing, appetite suppression, renal calculi, somnolence.
- Side effects are typically seen at higher doses. 25 – 150 mg daily is better tolerated.
- Typically begin 12.5 -> 25 mg daily and may titrate to effect
- Topiramate can also be useful for headache prevention.

Antipsychotic medications

- Haloperidol, risperidone, aripiprazole, and tiapride are more likely than placebo to reduce tic severity
- Side effects to consider include drug-induced movement disorders, weight gain, and QTc prolongation
- For children 6 – 18 years with complex tic disorder or Tourette Syndrome, aripiprazole 2 mg once daily (to start) can be very effective
- Patients should be monitored regularly for drug-induced movement disorders and effectiveness
- Medications should be slowly weaned to avoid withdrawal dyskinesia

An algorithm of care

A child presents to your office for evaluation of irregular movements

Perform history and physical, evaluate for any neurologic or developmental differences

Screen for comorbidities typically found with tic disorders: ADHD, OCD, anxiety, mood disorder

Assign a diagnosis of tic disorder (provisional, persistent, or Tourette syndrome) if applicable

Counsel the patient and family on the natural history of tic disorders, assess child's degree of impairment

Recommend treatment options based on presence of comorbidities

First line intervention for tics

Comprehensive Behavioral Therapy for Tics

- Especially helpful in kids with mood disorder, OCD, anxiety
- Habit Reversal Therapy (HRT) can be as effective as medication in correctly selected patients

Alpha adrenergic medications (clonidine, guanfacine)

- A good choice for children with comorbid ADHD
- Can be very sedating but can also help with sleep
- Usually effective early, gradually taper

Topiramate

- Generally well tolerated at low doses
- May also be helpful for overweight patients, chronic headaches

Next steps in tic intervention

- Regular follow-up. Assess dose response, heart rate and blood pressure
- Consider a trial of aripiprazole or risperidone while monitoring for weight gain or drug induced movement disorders
- Ensure ongoing treatment of comorbidities. In general, patients with tic disorder and comorbid ADHD, mood disorder, or OCD have better control of tics when comorbid conditions are controlled

When to refer?

- Whenever you are uncomfortable
- Tics that are resistant to first and second line treatments
- Psychiatry referral for management of comorbidities if complex
- If there are neurologic abnormalities on exam or you suspect a tic mimic that would warrant further evaluation.

Questions/Discussion