Tics and Tourette Syndrome

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Outline

- Movement disorders
- Tic disorders
- Epidemiology
- Classification of tics
- Diagnosis
- Management
- When to refer
- What to tell parents

Movements disorders

- Hyperkinetic (dyskinesia):dystonia
  - Abnormal repetitive involuntary movements
  - Tics
  - Stereotypies
  - Chorea
  - Myoclonus
  - Tremors
- Hypokinetic (akinetic):
  - Parkinsonism

Tic Disorders

- **Tic:** non-rhythmic, repetitive and intermittent muscle contraction which are performed identically every time.
  - Child feels an urge to perform the movement and relief once it has been performed
  - They can suppress the movement for a short period of time
- **Tourette Syndrome**: diagnosed when the individual has multiple motor and vocal tics that have been present for at least 1 year and that have a waxing-waning symptom course
- Etiology remains unclear:
  - Arise from basal gangliathalamocortical circuits
  - Imprecise regulation?
  - Genetic component and environmental input

Epidemiology

- 1 in 4 children will have tics at some point during childhood
- Onset is usually between 5-7 yrs
- Peak severity between 10-12 yrs
- Motor tics are more common
  - Eye blinking is the most common

- Prevalence of Tourette syndrome is 1%
  - Boys are 4 x more likely to have Tourette syndrome

- Types of tics:
  - Motor/Phonic
  - Simple/complex
  - Transient/chronic

Simple motor tics

- Sudden and brief
- Face and neck:
  - Blinking
  - Eye movement or wide eye opening
  - Nose twitching
  - Lip movement
  - Neck jerk
- Abdomen – tensing
- Extremities – Clenching, jerking

Simple motor tic example

- https://www.youtube.com/watch?v=FAd5lQg9V60

Simple phonic tics

- Sudden and Meaningless
- “allergy” like:
  - Grunting
  - Sniffing
  - Throat clearing
  - Coughing
- Non vocal:
  - Air expulsion from mouth or nostrils
  - Tongue clicking
  - Hissing
- Animal sounds – barking, chirping, whistling

Simple phonic tic example

- https://www.youtube.com/watch?v=OrhuW-TBFXg

Complex motor tic

- Slower and longer
- Often include a combination of simple tics
- More "purposeful":
  - Head shaking
  - Scratching or finger tapping
  - Gestures – waving, reaching
  - Imitative
  - Distorted facial expression or body posture
  - Copropraxia – making offensive gestures
- Self-abusive – pulling on fingers, lip-licking causing chapping

Complex motor tic example

- https://www.youtube.com/watch?v=hPmSL8M3jDE

Complex phonic tics

- Sudden
- Linguistic elements: syllables, words or phrases
- Speech atypicalities: Change in speech meter or pitch
- Imitative speech
- Echolalia: repeating the last-heard word or phrase
- Palilalia: repeating one's own sounds or words
- Coprolalia: abrupt, sharp bark or grunt utterance of obscenities, or ethnic, racial, or religious slurs

Complex phonic tic example

- https://www.youtube.com/watch?v=gBUw2cFksPs

Transient vs chronic

- Transient tics:
  - Last between 1-12 month
  - Milder
  - Less likely to be associated with developmental or behavioural conditions

- Chronic tics:
  - Last > 12 months
  - Change in anatomical location, frequency, type, complexity and severity
  - New tics may replace old ones or get added on
  - Waxing and waning course – can have tic free periods of weeks-months
  - More likely to have comorbid conditions

How do we make the diagnosis?

- Tic History:
  - What are the movements?
  - Is the pattern of movements?
  - Have the movements changed over time?
    - Shoulder shrugging to eye blinking
  - Can the movements be suppressed?
  - Do stressors or emotions effect the movements?
    - Aggravating or relieving factors
  - Do they feel an urge to perform the movement?
  - What do they feel if they don't perform the movement?

How do we make the diagnosis?

- PmHx:
  - Prenatal smoking exposure
  - Lower birth weight
  - Comorbidities
- Family Hx:
  - Tics during childhood or any comorbidities
- Social:
  - Stress and poor sleep
  - Anxiety level

Comorbid conditions

- Attention-deficit/hyperactivity disorder
- Obsessive-compulsive disorder and obsessive-compulsive behaviours
- Learning disability
- Anxiety disorders
- Mood disorders
- Oppositional defiant disorder
- Self-injurious behaviour
- Anger dysregulation

What else is important to know

- Tics can be symptomatic of other disorders:
  - Infection or post infectious source
    - Pediatric autoimmune neuropsychiatric disorder associated with streptococcal infection (PANDAS)
  - Drugs or toxins
  - Neurodevelopmental disorders
  - Chromosomal disorders eg. Trisomy 21
  - Head trauma
  - Malignancy
  - Neurocutaneaous syndromes
  - Seizure disorders

Diagnosis – DSM V

Tourette's Disorder:

A. Both multiple motor and one or more vocal tics have been present at some time during the illness, although not necessarily concurrently.

B. The tics may wax and wane in frequency but have persisted for more than 1 year since first tic onset.

C. Onset is before age 18 years.

D. The disturbance is not attributable to the physiological effects of a substance (e.g., cocaine) or another medical condition (e.g., Huntington's disease, postviral encephalitis).

Diagnosis – DSM V

Persistent (Chronic) Motor or Vocal Tic Disorder:

A. Single or multiple motor or vocal tics have been present during the illness, but not both motor and vocal.

B. The tics may wax and wane in frequency but have persisted for more than 1 year since first tic onset.

C. Onset is before age 18 years.

D. The disturbance is not attributable to the physiological effects of a substance (e.g., cocaine) or another medical condition (e.g., Huntington's disease, postviral encephalitis).

E. Criteria have never been met for Tourette's disorder.

How do tics effect children and families

- The child:
  - Can interfere with reading, writing, listening and speaking
  - Can be distracting
  - Can be physically challenging and uncomfortable
  - Can be embarrassed and frustrated

- The family:
  - Can be embarrassed and frustrated
  - Can worsen the tics by bringing attention to them

Management

1. Education
2. Reassurance
3. Monitoring for comorbidities
4. Addressing academic concerns with psychosocial and psychodeducational assessment
5. Behavioural therapy
6. Pharmacotherapy

Focussing on building a positive psychosocial outcome is key

Behavioural therapy

1. Habit reversal therapy:
   - Performing a tic reduces an unpleasant urge
   - Attempt to break this cycle of negative reinforcement
   - Teaches the child to become very aware of the urge and trains them to perform a competing voluntary movement
   - Eventually, the urge disappears
2. Exposure and response prevention:
   - Similar to HRT,
   - Attempts to break the cycle by prolonged suppression using cognitive tools
   - The patient learns to tolerate the sensation which may lessen

Pharmacotherapy

- Indications:
  - Moderate to severe tics that bother the child – NOT the parent
- No medication can completely eliminate tics
- Effective medication work by clocking the dopamine neurotransmission within the basal ganglia

- ** It is important to recognize that an improvement in tics upon starting treatment could be due to the general waxing and waning pattern of tic!!!**

Pharmacotherapy

- Alpha 2 adrenergic agonist:
  - Clonidine
  - Guanfacine (Intuniv ®)
  - Will also help with ADHD symptoms and insomnia
  - Can take up to 2 months to have full effect

- Atypical neuroleptics:
  - Risperidone
  - Olanzapine
  - Will also help with comorbid aggression

Tics and ADHD medications

- The presence of tics is not a contraindication to starting ADHD medications
- Stimulants do not cause tics or permanently increase tic severity
- But they can:
  - Uncover tics in a patient predisposed to tics
  - Aggravate tics - although some might actually be improved by the ADHD medications

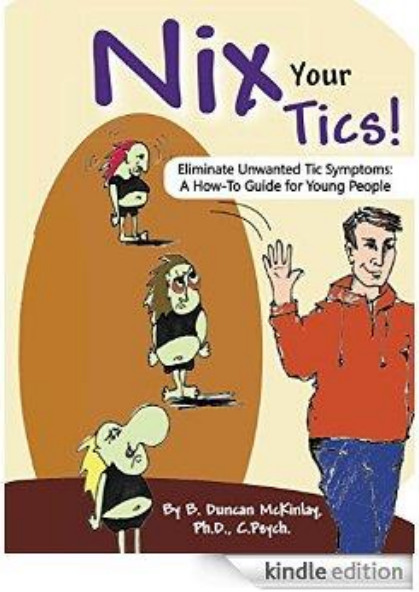
Prognosis

- Chronic tics wax and wane regardless of interventions
- Most significantly improve and often resolve by late adolescence
- The greater challenge will not come from the tics but rather the comorbid conditions

When to refer

- If you are unsure of the diagnosis
- If you are concerned about complex tics
- If the patient is bothered by the tics AND the family would like to move forward with treatments

- While waiting…



What to tell parents

1. 1 in 4 child will have tics at some point – it's common
2. The tics will come and go and may change over time
3. Do not draw attention to the tics
4. Suppressible does not mean deliberate
5. Do not tell the child to "stop doing that" – they can't
6. May get worse before it gets better – peak 10-12yrs
7. They will, most likely, grow out of it

Thank you!

References

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