Update on Tics and Gilles de la Tourette Syndrome

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Tics

- Tics are sudden, repetitive, stereotyped movements or vocalizations, involving specific muscle groups

Simple
Complex

DSM V Criteria for Gilles de la Tourette Syndrome

- Two or more motor tics *and* at least one vocal tic (do not need to occur at the same time
- Have had tics for at least a year
- Begin before 18 years of age.
- Not due to medication, drugs or another medical condition

Stigma

- *(Malli et, Eur Child and Adolesc Psychiatry)*
- Youth who do not have TS show an unfavourable attitude towards individuals with TS in comparison to typically developing peers.
- Young people with TS describe devaluation from others as a response to their disorder.
- Self-degrading comments noted in a number of studies where children point out stereotypical views that they had adopted about themselves.
- Parents expressed guilt in relation to their children's condition and social alienation as a result of the disorder.

Co-morbidities

- Attention deficit hyperactivity disorder
- Obsessive-compulsive disorder
- Anxiety
- Learning disability
- Pervasive developmental disorders
- ODD/Conduct disorder/Episodic Rage
- Sleep problems

- *(Hirschtritt et al, JAMA Psychiatry, 2015)*
- Most comprehensive study to date of TS and its co-morbidities
- Compared patients with TS (n = 1374) to TS-unaffected family members (n = 1142)
- The lifetime prevalence of any psychiatric comorbidity among individuals with TS was 85.7%
- 57.7% of the population had 2 or more psychiatric disorders
- The mean (SD) number of lifetime comorbid diagnoses was 2.1
- 72.1% of the individuals met the criteria for OCD or ADHD
- Other disorders, including mood, anxiety, and disruptive behavior, each occurred in approximately 30% of the participants.
- The age of greatest risk for the onset of most comorbid psychiatric disorders was between 4 and 10 years

- Impact of co-morbidities may be more significant than tics
- Treating co-morbidities can reduce anxiety/stress thus reducing tic severity
- "Good vs. Bad" outcome in quality of life studies related to co-morbidities, not tic severity
    - Greatest predictor of quality of life in TS children was ADHD severity (*Cavanna et al, Neurology, 2008*, *Storch, J Clin Child Adolesc Psychol, 2007*, *Pringsheim, Dev Med Child Neurol 2009)*

Approach to Treating tics

1. Education
- Correct explanation of disorder
- Natural History
- Dispel myths
2. Treat most impairing co-morbidity
3. Consider medication for tics

Summary of Evidence for Treatment for Tics
(Pringsheim et al, Can J Psych, 2012)

Strong Recommendations
- Habit Reversal Therapy

High quality evidence
- Exposure and Response Prevention

Low quality evidence

- Clonidine

Moderate quality evidence
- Guanfacine

Moderate quality evidence

Weak Recommendations: Antipsychotics

- High Quality

Pimozide
Haloperidol
Risperidone

- Low Quality

Fluphenazine
Metoclopramide
Aripiprazole
Olanzapine
Ziprasidone;

- Very Low Quality

Quetiapine

- Weak Recommendations
- Low Quality

Topiramate
Baclofen
Botulinum toxin
Cannabinoids
Not recommended in children

- Very Low Quality

Tetrabenazine

Other treatments

- *Behavioural treatment*

May be as effective as medication
Does not take tics away completely
Teaches children to convert a bothersome tic into a less bothersome one
Need to be ≥ 9 years and be motivated to do therapy

- *Deep Brain Stimulation*

Insufficient evidence for formal recommendation
Experimental
Not recommended for children

- *Transcranial Magnetic Stimulation*

Existing research studies suggest no benefit

PANDAS (Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infection)

- PANDAS Criteria

Tic disorder and/or OCD (fulfilling DSM IV-TR criteria)
Ages 3-12 years
Abrupt onset of symptoms and/or episodic course
Temporal association between symptom exacerbation and streptococcal infections
Neurologic abnormalities on examination
Choreiform movements

Tics
Hyperactivity

- In original article on PANDAS noted that diagnosis cannot be made without at one or two clear exacerbations associated with GAS infection
- Titres might be preferable to throat swab
- Single titre insufficient, as need to document falling titres as symptoms improve
- But state that not all exacerbations need to be linked to GAS infetion
- Non-specific immune activation *(Swedo et al, Am J Psychiatry, 1998)*

PANS (Pediatric Acute Onset Neuropsychiatric Syndrome)

- 3 diagnostic criteria :
- Abrupt, dramatic onset of OCD or anorexia.
- At least two additional neuropsychiatric symptoms with similarly severe and acute onset.
- anxiety;
- mood swings and depression
- aggression
- irritability and oppositional behaviors
- developmental regression, sudden deterioration in school performance or learning abilities
- sensory and motor abnormalities
- somatic signs and symptoms.
- Symptoms are unexplainable by a known neurologic or medical disorder. (Swedo et al, Pediatr Therapeut 2012)

Cunningham Panel (Moleculera Labs)

- *(Singer et al, PLOS One, 2015)*
- found that there are likely two groups of PANDAS type patients
    - those with "choreiform movements" have antibody profile similar to Syndeham's chorea vs those with no choreform movements