Tic Disorders in Children

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Definition and Description

• Tics: Sudden rapid repetitive movements of individual muscle groups
• Other terms: Habit spasms or mannerisms
• Types of Tics:
  – Simple Motor Tics
  – Complex Motor Tics
  – Simple Vocal Tics
  – Complex Vocal Tics
Simple Motor Tics

- Fast
- Darting
- Meaningless
- Involve one muscle group
Simple Motor Tic Examples

- Eye Blinking
- Lip Pouting
- Head Jerking
- Finger Movements
- Frowning
- Grimacing
- Abdominal Tensing
- Jaw Snapping
- Tensing/Rapid Jerking
- Nose Twitching
- Arm Jerking
- Kicking
- Tooth Clicking

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Complex Motor Tics

- Slower
- Purposeful
- Stereotypic movements
- Involve more than one muscle group
Complex Motor Tic Examples

- Hopping
- Twirling
- Biting
- Rolling Eyes
- Funny Expressions
- Touching
- Gyrating
- Head Banging
- Pinching

- Throwing
- Bending
- Picking
- Tearing
- Copropraxia
  - Grabbing Genitals
  - Obscene Gestures
- Echopraxia:
  - Imitating Gestures or Movements

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Simple Vocal Tics

- Meaningless Sounds
- Meaningless Noises
- Involve One Sound or Noise
Simple Vocal Tic Examples

- Throat Clearing
- Screeching
- Gurgling
- Hissing
- Coughing
- Barking
- Clacking
- Sucking
- Spitting

- Grunting
- Whistling
- Snorting
- Sniffing
- Making Syllable Sounds:
  - “Uh uh” “eee” “bu”
Complex Vocal Tics

- Meaningful words
- Interrupts flow of speech
- May involve pitch or volume changes
  - **Coprolalia**
    - Obscene language
    - Socially unacceptable words or phrases
    - May involve only the first syllable of the word
    - Incidence 5-30%
Complex Vocal Tics

- Complex Respiratory Patterns
- Repetitive Phrases:
  - “Oh Boy”
  - “You Know”
  - “Shut Up”
  - “You’re Fat”
  - “All Right”
  - “What’s That”

- Palilalia: Repeating own words or parts of words
- Echolalia: Repeating others sounds, words, or parts of words

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Video of Motor and Vocal Tics

Courtesy of TSA
Characteristics

- Occur mostly while relaxed
- Occur while awake and most stop in sleep
- Increase with anxiety
- Suppressible briefly, but not voluntary
- Fluctuate in pattern and time (wax and wane)
Characteristics

- "Promontory Urge"
- Sensory discomfort in a muscle preceding the tic
- Urge-relief Cycle
- Sense of urgency relieved by a compulsive act

Etiology: Postulated Causes

- Idiopathic neuro-chemical brain alterations:
  - Biochemical imbalance in basal ganglia
  - Involves neurotransmitters dopamine and serotonin as messages are sent to frontal cortex
  - Genetic factors
  - Head trauma
  - Drug induced
  - Infections
Onset and Incidence of Tics

- Onset: Childhood (4-6 years)
- May diminish during adolescence
- < 10% become more severe in adulthood
- Incidence is difficult to estimate
  - Study techniques differ: samples, criteria
  - Under reporting: poorly recognized until intense
  - Confused with allergies, colds, vision problems, nervous habits
Incidence of Tics in Children

- Suburban school, K-6, N=553 (Snider et al 2002)
  - 24%

- Nine Suburban School Districts N= 1,596 (Kurlan et al 2001)
  - 23 % in Special Education
  - 18 % in Regular Education
Classifications: DSM-IV-TR, 2000

• Transient Tic Disorder
• Chronic Motor or Vocal Tic Disorder
• Tourette Disorder
• Tic Disorder NOS

Tic Disorders are on a continuum and declare themselves over time

Mild ↔ Moderate ↔ Severe
Transient Tic Disorder
DSM-IV-TR, 2000 Classification

- Motor Tic + Vocal Tic (1 or more of each) or Motor Tic or Vocal Tic (at least 1)
- Occur many times/day for 1-12 consecutive months
- Onset before 18 years of age
- Not due to effects of a substance or other medical condition
- No past diagnosis of Tourette Disorder, Chronic Motor or Chronic Vocal Tic Disorder
- Can be a single episode or recurrent
Chronic Motor or Vocal Tic Disorder

DSM-IV-TR, 2000 Classification

• **Motor Tic** (at least 1) or **Vocal Tic** (at least 1), but not both present at some point
• Occur daily, nearly everyday or intermittently
• Occur for >12 months
• No tic-free period > 3 consecutive months
• Onset before 18 years of age
• Not due to the effects of a substance or other medical condition
• No past diagnosis of Tourette Disorder

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Tourette Disorder
DSM-IV-TR, 2000 Classification

- **Motor Tic** (at least 2) + **Vocal Tic** (at least 1), present at some point, but not necessarily concurrently
- Occur many times a day, nearly everyday or intermittently
- Occur >12 months
- No tic-free period > 3 consecutive months
- Onset before 18 years
- Not due to the effects of a substance or other medical condition

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Tic Disorder NOS
DSM IV-TR, 2000 Classification

- Does not meet criteria for other tic disorders
- Duration < 4 weeks
- Onset after 18 years of age
Common Co-Morbidities

- Attention Deficit Disorder
  - Primary inattentive
  - Primary hyperactivity/impulsive
  - Combined type
- Anxiety Disorder
- Obsessive Compulsive Disorder
- Other neuro-psychiatric diagnoses
Evaluation & Management

History
- Medical
- Family
- Behavioral
- School

Management
- Medical
- Psychotherapeutic
- Behavioral
- Familial (Patient education)
- Educational
Medical Management: Medication

• Select medication based upon co-morbidities
• Consider serious side effect profiles
• Weigh risk versus benefit
• Consider guidelines for medication:
  – Functional impairment
  – Decreased self-esteem
  – Teasing by peers/bullying
  – Disruption at home or school
  – Physical injury
Medication Selection

• Step 1: Identify areas of concern
• Step 2: Identify the most difficult problem
• Step 3: Consider medications that target the most difficult problem:
  – Tics
  – Attention Deficient Disorder and sub-type
  – Obsessive/Compulsive Disorder
  – Anxiety
Tic Medical Management: Medication

- **Alpha-2 adrenergic agonists**
  - Clonidine (Catapres®)
  - Guanfacine (Tenex®)

- **Atypical neuroleptics**
  - Risperidone (Risperdal®)
  - Olanzapine (Zyprexa®)

- **Typical neuroleptics**
  - Pimozide (Orap®)
  - Haloperidol (Haldol®)

- **Benzodiazepines**
  - Clonazepam (Klonopin®)

- **Botulinim Toxin A (Botox®) for focal tics**
  - Reduces promontory urge
  - Lasts 3-4 months

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Tic Management: Behavioral Treatments

• Habit Reversal Training
  – Increases awareness of tics and promontory urges and then a competing response is performed
  – Less effective in younger children

• Functional-Based Assessment and Treatment:
  – Identifies and changes environmental variables or behavior that occurs in response to variables

(Himle, 2006)
Medications for Attention Deficient Disorders: Non-Stimulants

- **Anti-Depressants:**
  - Bupropion (Wellbutrin®)
  - Imipramine (tricylic anti-depressant)

- **Blood Pressure Meds:**
  - Clonidine (Catapres®)

- **Other:**
  - Guanfacine (Tenex®)
  - Atomoxetine (Strattera®)

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Medications for Attention Deficient Disorders: Stimulants

- **Methylphenidate:**
  - Short acting: Ritalin®, Metadate®
  - Long-acting: Concerta®, Metadate CD®, Ritalin LA®

- **Dextroamphetamine:**
  - Dexedrine®

- **Amphetamine:**
  - Mixed and Long-acting
    - Adderall®, Adderall XR®
Medications for Obsessive Compulsive Disorder (OCD)

- Anti-depressants:
  - SSRI’s (Selective Serotonin Uptake Inhibitors)
    - Fluoxetine (Prozac®)
    - Fluvoxamine (Luvox®)
    - Citalopram (Celexa®)
    - Sertraline (Zoloft®)
    - Paroxetine (Paxil®)
Process-Oriented Tic Assessment for the Primary Care Providers
Tic Disorder History: Symptoms, Medications & Treatments

- Identify all past and current tics
- Describe onset, frequency, timing, duration, pattern, change in pattern, and general status
- Identify tic classification
- Identify prescribed or OTC drugs or supplements (stimulants)
  - Indicate those related to tics
Tic Disorder Interval History: Medical Update

• Acute:
  – Signs & symptoms of streptococcal infection
  – Positive streptococcal infection

• Chronic:
  – Past History of streptococcal infection
  – Status of other co-morbidities
• Educate the family:
  – Waxing and waning nature of tics
  – Tic: temporary relief of urge
  – Suppression of tic can be more debilitating
  – Factors that exacerbate tics
  – “Benign neglect” approach
  – Medication side effects (if medicated)
  – Guidelines for f/u with health care provider
Tic Disorder Interval History: General Health & Psycho-Social Issues

- Sleep: Prolonged wakefulness
- Nutrition: Weight loss or gain
- Psychiatric co-morbidities
  - ADD/ADHD, anxiety, OCD, mood disorders
- Behavior
  - Defense mechanisms (withdrawal, denial, depression, dependency, anger/rage)
- Social Impact: Peers & family members
- Level of concern & understanding
Action: Health, Psycho-Social Issues, Family Dynamics and Coping

• Discuss guidelines for follow-up:
  – Medication side effects or interactions
  – Exacerbation of tics
  – Behavioral or psychiatric issues
  – Changes in status of co-morbidities
School and Therapy Programs

- Potential challenges for children with tic disorders or Tourette Syndrome:
  - Difficulties with fine motor control, motor inhibition, and visual motor integration
  - Deficits in procedural memory
  - Impact of OCD, ADD/ADHD or Anxiety

- Increased vulnerability for drug use, depression, or antisocial behavior
School and Therapy Programs

• Assess:
  – Academic performance
  – Learning disabilities
  – Focus/Attention issues (if on meds, response)
  – Educational or ADD/ADHD testing (need or results)
  – Educational Interventions (504 Plan, IEP, Resource, tutoring)
  – Tic interference with school work
  – Social skills, peer relationships
Action: School and Therapy Programs

- Obtain consent for exchange of information
- Encourage testing (educational or ADD/ADHD) as appropriate
- Provide input for school management plan:
  - IEP (individualized educational plan)
  - 504 plan
  - Behavior plan
Consider classroom accommodations:

- Tic breaks
- Untimed tests
- Flexible testing schedule
- Private test taking
- Scribes or tape recorder
- Computer/typed homework
- Reduced assignments & extended due dates
- Placement in front of the class
Provider Resources

- Tourette Syndrome Association [www.tsa-usa.org](http://www.tsa-usa.org)
- Tourette Syndrome “Plus” [www.tourettessyndrome.net](http://www.tourettessyndrome.net)
- Planet Tic [www.planettic.com](http://www.planettic.com)
- Developmental and Behavioral Pediatrics [www.dbpeds.org](http://www.dbpeds.org)
- Child Neurology Telephone Encounter Guides, details at [www.acnn.org/books](http://www.acnn.org/books)
Summary

• Tics are the most common movement disorder in children
• Tics are on a continuum of severity
• “Benign Neglect”: reasonable approach
• Medication management is a serious decision
• Associated problems (co-morbidities) need to be identified and addressed
Two Editions: Comprehensive and Pocket

Child Neurology Telephone Encounter Guides

A comprehensive clinician toolkit for guiding telephone encounters

INCLUDES:
- topic overviews,
data collection tools
- and quick reference guides
  for common neurological disorders in children

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