Tourette Syndrome: Tic Talk
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Disclosure Information

• I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider of commercial services discussed in this CME activity.

• I do intend to discuss an unapproved/investigative use of a commercial product/device and will disclose such references to learners.

• These will include unapproved/investigative use of a variety of psychotropic medications and of a deep-brain stimulation device. I will disclose such references to learners.

Overview

• Signs and symptoms
• Associated problems
• Management
**Tic Disorders: Characteristics**

- **Tic Definition**
  - motor or phonic
  - involuntary (unvoluntary?)
  - sudden and rapid
  - recurrent
  - non-rhythmic and stereotyped

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### Tics: Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Simple</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>&quot;Meaningless&quot;/isolated</td>
<td>&quot;Purposeful&quot;</td>
</tr>
<tr>
<td></td>
<td>Facial and neck</td>
<td>Gestures</td>
</tr>
<tr>
<td></td>
<td>Abdomen</td>
<td>Dystonic postures</td>
</tr>
<tr>
<td></td>
<td>Extremities</td>
<td>Self-abusive or vulgar</td>
</tr>
<tr>
<td>Phonic</td>
<td>&quot;Meaningless&quot;&quot;</td>
<td>&quot;Linguistic&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;Allergy&quot;-like</td>
<td>Syllables</td>
</tr>
<tr>
<td></td>
<td>Grunting</td>
<td>Words, obscenities</td>
</tr>
<tr>
<td></td>
<td>Tongue-clicking</td>
<td>Imitative (&quot;echoic&quot;)</td>
</tr>
<tr>
<td></td>
<td>Animal noises</td>
<td>Speech atypical</td>
</tr>
</tbody>
</table>
Tourette’s Disorder

• DSM-IV-TR™ Criteria
  – Multiple motor plus 1 or more vocal
  – Many times/day and at least 1 year
  – Onset before 18 years
  – Not due to substance or medical condition

Chronic Tic Disorder (M or V)

• DSM-IV-TR™ Criteria
  – Multiple (or single) motor or vocal
  – Many times/day and at least 1 year
  – Onset before 18 years
  – Not due to substance or medical condition

Transient Tic Disorder

• DSM-IV-TR™ Criteria
  – Multiple (or single) M. &/or V.
  – Many times/day (4 weeks – 1 year)
  – Onset before 18 years
  – Not due to substance or medical condition
PREMONITORY URGE

Anatomic evolution of tics

Epidemiology

- Prevalence
  - 1% males (or more)
  - Male > Female (3-to-10 times)
Etiology

- Neuroanatomy
- Imaging Studies
- Neurotransmitters
- PANDAS
- Genetics

Tics: Pathophysiology

- Cortical & Subcortical network
  - Sensory
  - Affective
  - Motor

URGE → TIC → RELIEF
Differential Diagnosis of tics

- Sydenham’s chorea
- Compulsions
- Blepharospasm
- Other hyperkinetic disorders
- Stereotypies
- Allergies

Identification

- Clinical aspects of tics
- Comorbid conditions
- Emotion and behavior

Identification – comorbid conditions

KEY POINT!
Always assess for non-tic comorbidity
* 90% occurrence if tics mild
* 100% occurrence if tics severe

*in clinically-referred samples
Assessment:
co-morbid conditions

- ADHD
- Obsessions/Compulsions
- Learning interferences
- Behavioral disorders
- Developmental disorders
- Mood disorders
- Anxiety
- Social difficulties (including PDDs)

Clinical Course

- < 7 ADHD
- 7 Simple motor tic (head)
- 8 Vocal tic
- 11 OCS + peak tic severity
- > 11 tics ↓ (but lifelong in 50-90%)

Identification — emotion and behavior

- Psychosocial Evaluation
  —behavioral and emotional assessment
  —structured diagnostic interviews
Clinical Assessment

- History of tics from several sources
- Ask about specific comorbid conditions
- Medication history
- Education or occupational data
- Social history
- Family pedigree
- Physical examination

Diagnostic Pitfalls 101

- Subject or clinician unaware of tics
- Waxing and waning nature of tics
- Tics are suppressible

Diagnostic Pitfalls 102

- T.S. is not rare
- T.S. is usually not catastrophic
- Few have coprolalia
- You may not see the tics
Management

• General Guidelines
  – Education
  – Monitoring
  – Containment

Management

• General Guidelines - Education
  – Clarify neurological basis
  – Reassurance and support
  – Emphasize strengths
  – Whole child

Management

• Is further treatment necessary:
  – For tics?
  – For comorbid conditions?
Management

• Perspectives:
  – The child
  – The parent
  – The school
  – You

FOCUS ON TARGET SYMPTOMS

Management:
  • Education & Accommodation
  • Medications
  • Experimental
    – Behavioral
    – Integrative
    – Surgical
Management - tics

- Non-pharmacological
  - Dynamic psychotherapy
  - Supportive
  - Cognitive-Behavioral
  - Parenting education

Management - tics

- Non-pharmacological
  - Behavioral approaches
    - CBIT (Comprehensive Behavioral Intervention for Tics)
      - HRT (Habit Reversal Therapy)
        - Awareness Training
        - Competing Response
        - Relaxation
        - Social Support
    - FA (Functional Analysis)
      - Social situations that influence behaviors

Management - tics

- Teacher in-service on T.S.
- Classroom education on T.S.
- Teacher as role model
- Tic breaks/sanctuaries
- Testing accommodations
- Opportunities for movement
- Scribes
- Tic suppression (behavioral and/or medical)
Management: “co-morbid” conditions

- Family dysfunction
- OCD & other anxiety disorders
- ADHD
- Learning difficulties
- Behavioral Disorders
- Sleep disturbances
- Other self-injurious behaviors

Pharmacotherapy

**KEY POINTS!**

- Do not assume medication is necessary
- Address comorbid condition(s)
- Complete tic remission is rare
- Stimulants are generally safe

Pretty much everything known to humankind tried for tics

<table>
<thead>
<tr>
<th>Scientific class</th>
<th>Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaloid</td>
<td>nicotine, reserpine</td>
</tr>
<tr>
<td>Alpha adrenergic agonist</td>
<td>clonidine, labetalol, guanfacine</td>
</tr>
<tr>
<td>Anti-cholinesterase</td>
<td>donepezil</td>
</tr>
<tr>
<td>Anti-convulsant</td>
<td>levetiracetam, topiramate</td>
</tr>
<tr>
<td>Anti-depressant (tricyclic)</td>
<td>desipramine, clomipramine</td>
</tr>
<tr>
<td>Anti-hypertensive (misc.)</td>
<td>losartan, nebivolol</td>
</tr>
<tr>
<td>Anti-Parkinson</td>
<td>pergolide</td>
</tr>
<tr>
<td>Anti-psychotic (other)</td>
<td>olanzapine, risperidone, ziprasid, quetiapine, sulpiride, aripiprazole</td>
</tr>
<tr>
<td>Atypical neuroleptic</td>
<td>atomoxetine, atomoxetine (NRI), bromocriptine, atomoxetine (DRI)</td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td>clonazepam</td>
</tr>
<tr>
<td>Cannabinoid</td>
<td>delta-9-tetrahydrocannabinol (THC)</td>
</tr>
<tr>
<td>Dopamine agonist</td>
<td>ropinirole</td>
</tr>
<tr>
<td>Dopamine antagonist</td>
<td>metoclopramide</td>
</tr>
<tr>
<td>MAO inhibitor</td>
<td>selegiline</td>
</tr>
<tr>
<td>Muscle relaxant</td>
<td>baclofen</td>
</tr>
<tr>
<td>Neurotoxin</td>
<td>botulin toxin A</td>
</tr>
<tr>
<td>Selective NE reuptake inhibitor</td>
<td>atomoxetine (DRI), atomoxetine (NRI)</td>
</tr>
<tr>
<td>Typical neuroleptic</td>
<td>haloperidol, fluphenazine, pimozide, haloperidol</td>
</tr>
</tbody>
</table>
Pharmacotherapy for tics

- Mild tics
  - No medication treatment

Pharmacotherapy for tics

- Mild tics w/ or w/o comorbid ADHD
  - Monotherapy
    - α-adrenergic agonists
    - Stimulants
    - Atomoxetine

Pharmacotherapy for tics

- Moderate tics
  - α-adrenergic agonists and/or:
  - Atypical neuroleptics

- Severe tics
  - Atypical neuroleptics
  - Typical neuroleptics
Pharmacotherapy for tics

• Category A
  – Typical Neuroleptics
    • Haloperidol (Haldol)
    • Pimozide
  – Atypical Neuroleptics
    • Risperidone

• Category B
  – Typical Neuroleptics
    • Fluphenazine (Prolixin)
  – Atypical Neuroleptics
    • Ziprasidone (Geodon)
    • Aripiprazole (Abilify)
  – Other
    • Clonidine (Catapres)
    • Guanfacine (Tenex)
    • Botulinum toxin (Botox)

• Category C
  – Atypical Neuroleptics
    • Olanzapine (Zyprexa)
    • Quetiapine (Seroquel)
  – Other
    • Baclofen
    • Nicotine patch or chewing gum
Pharmacotherapy for tics

• Other options that *may be effective*
  – Benzodiazepines
    • Clonazepam (Klonopin)
  – Anticonvulsants
    • Topiramate (Topamax) *growing interest*

Pharmacotherapy for Comorbid Conditions

KEY POINT!
Target the most troubling symptoms

Pharmacotherapy for Comorbid Conditions

• OCD
  – SSRI
    *CAUTION: FDA and AAP warning about suicidal risk in adolescents*
• Non-OCD Anxiety Disorders
  – SSRI or benzodiazepine (esp. clonazepam)
Pharmacotherapy for Comorbid Conditions

- Mood Disorders
  - SSRI or TCA
- Bipolar Disorders
  - Depakote or Lithium
- Rage Attacks
  - Risperidone
  - SSRI
  - Consider Depakote, Tegretol or Lithium

Treatment
Integrative Medicine

- “Complementary”
- “Alternative”

Integrative Medicine
Tourette syndrome

- Six of the categories
  - Medical
  - Nutritional
  - Foreign substances
  - Behavioral and cognitive
  - Manual and Energy Medicine
  - Mind-body
**Integrative Medicine**
practical guidelines

- Seek reliable evidence-based info
- Common sense
- Discuss any relevant treatment options
- Be aware of basic principles of biomedical ethics


**A common sense guide to complementary/alternative medicine**

<table>
<thead>
<tr>
<th>Safe?</th>
<th>Efficacious?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>YES</td>
<td>Recommend</td>
<td>Tolerate</td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
<td>Monitor closely or discourage</td>
<td>Discourage</td>
</tr>
</tbody>
</table>


**Surgical Treatment - Experimental**

- Deep Brain Stimulation (DBT)
Advocacy and Legal Rights

- Tourette Syndrome Association
- Protection and Advocacy Office
- Local Bar Association
- IDEA (now IDEIA)
- Section 504

Take Home Points: Clarifying Common Misconceptions

- TS is not rare
- Tics are usually mild, not catastrophic
- In most people with TS, tics are one of many related complications
- Address main problems, often not tics

For further information, including Rx discussion:

Tourette Syndrome Association, Inc.

www.tsa-usa.org

NEWLY DIAGNOSED Video Webstream
with Dr. John Walkup
Extensive Resources in Medical Home partnership:

Developmental-Behavioral Pediatrics

Depts.washington.edu/dbpeds
Review Articles


Websites
Dr. Sam Zinner’s Developmental & Behavioral Pediatrics site
http://depts.washington.edu/dbpeds (Select ‘Resources’)

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