

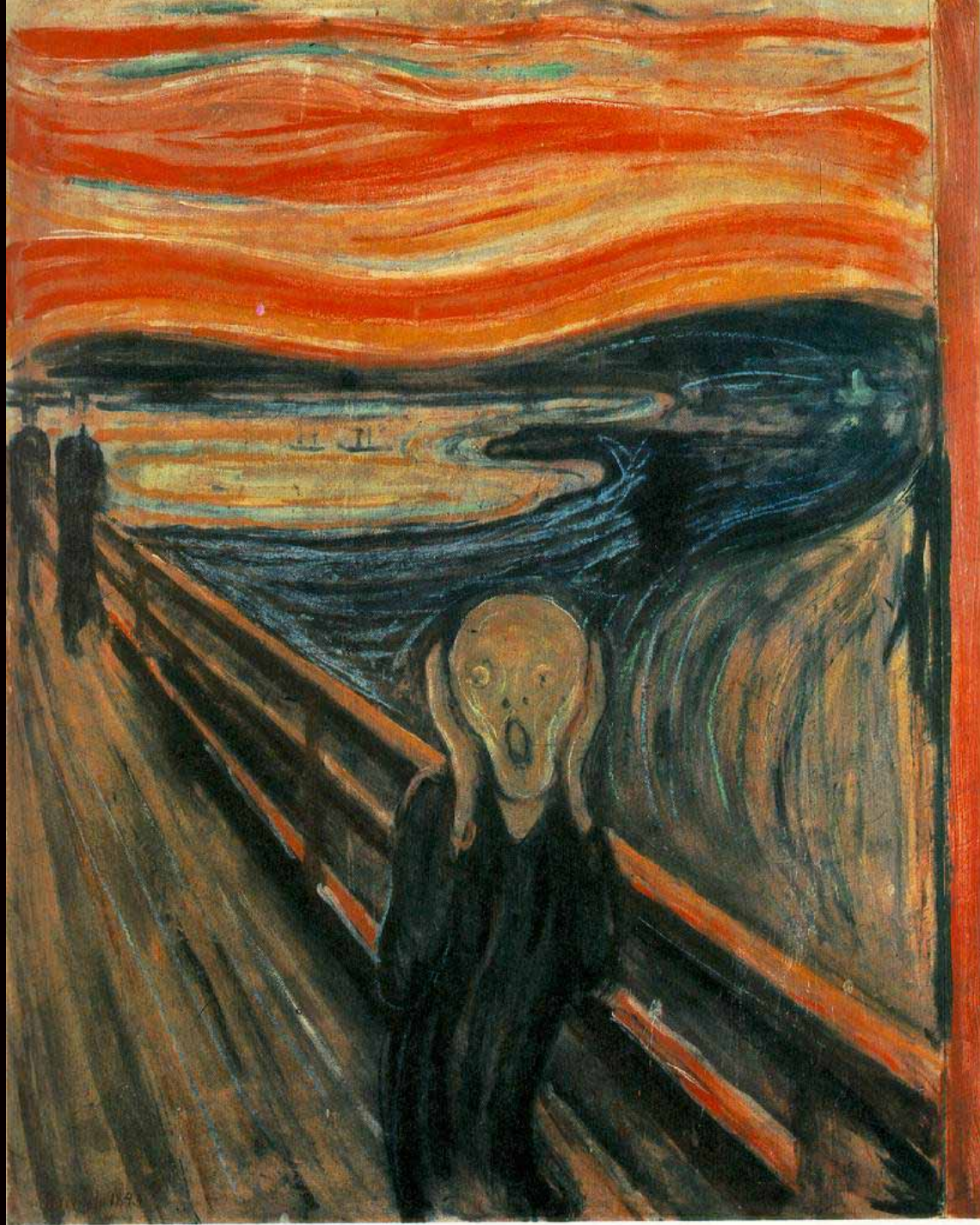
Comorbid Disorders in Tourette Syndrome

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Comorbidity= Coexisting Disorders

- May occur by chance alone
- May reflect overlapping pathophysiology
- May reflect treatment side effects
- May reflect referral bias

Possible Causes of Behavioral Problems in TS

- Tic severity
- Comorbid psychiatric disorders
- Stigmatizing illness
- Family/Social/School problems
- Medication side effects/interactions

Typical Complex Cases of Tourette Syndrome (“TS Plus”)

TS + OCD + ADHD

TS + OC + separation anxiety/phobias

TS + ADHD + LD

TS + OCD + ADHD + Depression

TS + PDD + OCS + ADHD

TS + ADHD + Bipolar + Substance Abuse

Common TS Comorbidities

- ADHD
- OCD/OCS
- Mood Disorders
- Non-OCD Anxiety Disorders
- Impulse Control Disorders
- Pervasive Developmental Disorders
- Learning Disorders
- Substance/Alcohol Abuse

Prevalence of Common Comorbidities in TS:

- Obsessive Compulsive Disorder: 25-50%
- Non-OCD Anxiety Disorders: 30-40%
- Attention Deficit Hyperactivity Disorder: 50-60%
- Mood Disorders: 30-40%
- Learning Disabilities: 20-30%

Obsessive Compulsive Disorder

Obsessive-Compulsive Disorder

- Either obsessions or compulsions
- At some point during course of disorder, symptoms are recognized as excessive and unreasonable
- Symptoms cause marked distress
- If Another Axis I Disorder is present, the content of the obsessions or compulsions is not restricted to it
- The disturbance is not the result of a general medical condition or effects of a substance

Obsessions

- Unwanted thoughts, impulses, or images
- Cause marked anxiety
- Not excessive worries about real-life problems
- Efforts made to ignore, suppress, or neutralize
- Recognized as product of one's mind

Compulsions

- Repetitive behaviors or mental acts
- Occur in response to obsessions
- Aimed at reducing distress or preventing dreaded event

Signs of Obsessive Compulsive Disorder

- Inability to get dressed within reasonable period
- Constant lateness
- Rituals for walking, sitting, eating, or dressing

Signs of Obsessive Compulsive Disorder

- Excessive hours spent on homework
- Frequent erasure holes in tests/ homework
- Repeated requests to answer same question or to repeat specific phrases

TS and Obsessive Compulsive Disorder

- High rates of comorbidity between TS and OCD
- High rates of OCD found in TS relatives
- Variable expression TS gene(s) \approx OCD subtype

Tourette Syndrome and OCD

- Age at onset
- Gender ratio
- Medication Response

Obsessions in Tourette Syndrome

Aggressive

Sexual

Religious

Somatic

Symmetry

Mental play

Compulsions in Tourette Syndrome

Checking

Touching

Writing/rewriting

Erasing

Hoarding

“Evening-up”

Obsessive Compulsive Spectrum Disorders

- ✓ Trichotillomania
- Compulsive Gambling
- Eating Disorders
- Kleptomania
- Body Dysmorphic Disorder

Trichotillomania and TS

Occurs in .02 – 3%

- Repetitive hair pulling
- More common in TS + OCD than in either TS or OCD alone
- May respond to dopamine antagonists

Treatment of OCD

- Psychopharmacology
- Cognitive Behavioral Therapy
- Family Therapy

Medications for OCD

- Fluoxetine/Prozac
- Sertraline/Zoloft
- Paroxetine/Paxil
- Fluvoxamine/Luvox
- Citalopram/Celexa
Escitalopram/Lexapro
- Clomipramine/Anafranil

SSRI Therapeutic Dose Ranges

| | |
|------------------------|--------------|
| Clomipramine/Anafranil | 150 – 300 mg |
| Fluoxetine/Prozac | 20 – 80 mg |
| Sertraline/Zoloft | 30 – 200 mg |
| Paroxetine/Paxil | 20 – 60 mg |
| Fluvoxamine/Luvox | 100 – 300 mg |
| Citalopram/Celexa | 20 – 60 mg |

- Dose to maximum tolerated, adjust during maintenance
- Therapeutic trial = maximum dose for 10-12 weeks
- Long-term pharmacotherapy often necessary
- Re-evaluate need for medication after one year

Other Medications for OCD

Risperidone, Olanzapine

Divalproex

Clonazepam

Neuroleptic augmentation

Other augmenting agents:

lithium, buspirone, atypical neuroleptics, SSRI +
clomipramine, psychosurgery

The Anxiety Disorders

- Panic Attacks/Panic Disorder
- Generalized Anxiety
- Anxiety due to medication or drugs
- Obsessive- Compulsive Disorder
- Phobias
- Separation Anxiety Disorder

Rx: Cognitive-Behavioral Therapy, SSRI, benzodiazepines, TCAs, MAOIs, propranolol, buspirone, nefazodone, bupropion, venlafaxine

Panic Attack

- ≥ 4 of the following symptoms developed abruptly:

Palpitations

Shortness of breath

Chest pain/discomfort

Feeling dizzy

Derealization

Fear of losing control

Numbness or tingling

Chills or hot flashes

Sweating

Choking sensation

Nausea

Feeling lightheaded

Depersonalization

Fear of going crazy

Trembling

Fear of dying

Generalized Anxiety Disorder

- Excessive anxiety and worry occurring more days than not for at least 6 months about a number of activities or events
- The person finds it difficult to control the worry
- ≥ 3 symptoms: restlessness, easily fatigued, difficulty concentrating, irritability, muscle tension, sleep disturbances
- Focus of anxiety is not confined to another Axis I Disorder
- Symptoms cause marked distress
- The disturbance is not the result of a general medical condition or effects of a substance

Specific Phobia

- Marked, persistent fear that is excessive or unreasonable, cued by presence or anticipation of specific object or situation
- Exposure to phobic stimulus provokes immediate anxiety
- Person recognizes fear as
- excessive/unreasonable
- Phobic situation is avoided or endured only with intense distress
- Functional impairment
- Not accounted for by another mental disorder

Examples of Specific Phobia

- Animal type: animals, insects
- Natural environment type: storms, water, heights
- Blood-injection type: receiving a “shot”
- Situational type: tunnels, bridges, airplanes, car
- Other type: fear of choking, vomiting

Social Phobia

- Marked, persistent fear of one or more social or performance situations in which the person is exposed to the scrutiny of others or to unfamiliar people
- Exposure to the feared social situation provokes immediate anxiety
- Person recognizes fear as excessive/unreasonable
- Phobic situation is avoided or endured only with intense distress
- Functional impairment
- Not accounted for by another mental or medical disorder

Social Phobia

- Fear of public speaking
- Fear of speaking to strangers or meeting new people
- Fear of eating, drinking, or writing in public
- Fear of using public restrooms
- May be related with medical condition such as Tourette Syndrome

Antidepressants/Anti-Anxiety Agents

Bupropion

Mirtazapine

Nefazadone

Venlafaxine

Duloxetine

Alprazolam

Mood stabilizers

ECT / VNS

Monoamine Oxidase Inhibitors

Lithium augmentation

Combination SSRI + other antidepressant

Anxiety Indications for SSRI/SNRI Medications

| | GAD | OCD | PD | PTSD | SocP | SpP |
|-------------|-----|-----|----|------|------|-----|
| Citalopram | X | | | | | |
| Fluoxetine | | X | | | | |
| Fluvoxamine | | X | | | | |
| Paroxetine | X | X | X | X | X | |
| Sertraline | | X | X | X | | |
| Venlafaxine | X | | | | | |

The Mood Disorders

- Dysthymic Disorder
- Bipolar Disorder
- Cyclothymic Disorder
- Manic Episode
- Major Depressive Disorder
- Mood disorder due to medication or drugs

Rx: **unipolar:** SSRIs, TCAs, venlafaxine, bupropion
trazodone, nefazodone, mirtazapine, MAOIs, ECT

bipolar: Lithium, carbamazepine, divalproex,
gabapentin, lamotrigine, topiramate, ECT

TS and Mood Disorders

- **Comorbid Mood Disorders:**
strongly associated with illness morbidity
- **Major Depression & Bipolar Disorder:**
highly significant predictors for psychiatric hospitalization and GAF < 50

(Coffey et al. 2000)

Anticonvulsants/Mood Stabilizers

Lithium

Valproate/Depakote

Carbamazepine/Tegretol

Topiramate/Topamax*

Clonazepam/Klonopin*

Purpose: to treat cyclic mood disorders, intermittent explosive disorder, conduct disorder, aggression

These medications must be taken 2-3 times daily and require close supervision and blood tests

Attention Deficit Hyperactivity Disorder (ADHD)

Attention-Deficit/Hyperactivity Disorder (ADHD)

Inattention

- Often fails to give close attention to details
- Difficulty sustaining attention
- Does not listen when spoken to directly
- Does not follow through on instructions
- Difficulties organizing tasks & activities
- Avoids to engage in tasks that require sustained mental effort
- Loses things necessary for tasks/activities
- Easily distracted
- Forgetful in daily activities

Attention-Deficit/Hyperactivity Disorder (ADHD)

Hyperactivity-impulsivity

- Fidgety
- Difficulty remaining seated when expected
- Runs/climbs excessively & inappropriately
- Difficulty engaging in leisure activities quietly
- “On the go” or “Driven by a motor”
- Talks excessively
- Blurts out answers before questions are asked
- Difficulty awaiting turn
- Often interrupts/intrudes on others

Attention-Deficit/Hyperactivity Disorder (ADHD)

- Onset of symptoms before age 7 years
- Impairment in > 2 setting (home, school, play)
- Clinically significant impairment in functioning
- Symptoms are not better accounted for by another mental disorder or medical condition

TS and ADHD

- TS + ADHD = higher rates of comorbid psychiatric disorders
- TS + ADHD = higher rates of learning disorders
- TS comorbidity with disruptive behavioral, mood, anxiety & learning disorders may be secondary to comorbid ADHD (and/or OCD)

Natural Course of Tic Disorders and ADHD

- Courses of ADHD and of Tic Disorders seem distinct
- No adverse impact of Tic Disorders on course of ADHD
- Treatment of ADHD with stimulants has limited effect on course of tics
(Spencer et al. 1998)

Psychostimulant medications

- Methylphenidate/Ritalin, Metadate, Methyllin, Ritalin-LA
- OROS methylphenidate/Concerta
- Dextroamphetamine/Dexedrine
- Dextroamphetamine + amphetamine/ Adderall
- D-methylphenidate/Focalin

Purpose: to treat ADHD, inattention/apathy, fatigue/depression in medically ill

Side Effects of Psychostimulants

Common: insomnia, irritability, nausea,
nervousness, headache, sedation, palpitations

Less Common: hypertension, hypomania,
psychosis, tics

Other Medications for ADHD

- Bupropriion/Wellbutrin
- Venlafaxine/Effexor
- Guanfacine/Tenex
- Clonidine/Catapres
- Tricyclic Antidepressants
- MAO inhibitors: selegiline/deprenyl
- Modafanil/Provigil
- Atomoxetine/Strattera

Learning Disabilities

- **Learning Disorders:** Disorders of Reading, Math or Written Expression
- **Motor Skills Disorder:** Developmental Coordination Disorders
- **Communications Disorders:** Disorders of Expression, Reception, Stuttering, Phonology
- **Pervasive Developmental Disorders & Autistic Spectrum Disorders**

Rx: Medical/Neurological/Psychiatric Evaluation, vision & hearing check, *Speech & Language evaluations, Neuropsychological Testing, supportive services for child, family, school interventions*

Aggressive Symptoms
in
Tourette Syndrome

Definition of Explosive Outbursts

- Abrupt, unpredictable episodes of severe physical and/or verbal aggression
- Grossly out of proportion to any provocation
- Experienced as uncontrollable & distressing
- Accompanied by physiological activation

Explosive Outbursts in TS

- Common in clinical settings
- Cause severe morbidity
- Reactive/Impulsive aggression
- Etiology varies

Treatment of Rage Symptoms in TS

Comprehensive Evaluation

- **Diagnosis:** medical, psychiatric, neuropsychological
- **Medications:** side effects, drug interactions
- **Psychosocial function:** home, school, peers

Treatment of Rage Symptoms in TS

- ADHD: stimulants, bupropion, clonidine, guanfacine
- OCD: SSRIs, clomipramine
- Major Depression & Anxiety: SSRIs, TCAs, bupropion, venlafaxine, duloxetine
- Bipolar Disorder: Lithium, divalproex, carbamazepine
- EEG abnormalities & neurological soft signs: anticonvulsants, lithium, buspirone, propranolol
- Learning Disabilities: cognitive/educational training

Treatment of Rage Symptoms in TS

- **Atypical antipsychotics:**
risperidone, olanzapine, ziprasidone, quetiapine, aripiprazole
- ✓ **SSRIs:**
paroxetine, citalopram/escitalopram, fluvoxamine, fluoxetine, sertraline
- **Anticonvulsants/Mood Stabilizers:**
carbamazepine, divalproex, lithium, topiramate,
- **Other:**
buspirone, venlafaxine, propranolol, bupropion, clonidine

Treatment Problems in Complicated TS

- Improvement in one area/ exacerbation in another
- Frequent need for polypharmacy
- ↑ drug interactions & side effects
- Need for appropriate psychosocial and educational resources and support

Additional Information

TS and Related Disorders

- National Tourette Syndrome Association (TSA)
42-40 Bell Boulevard, Bayside, NY 11361
718 224-2999
- Children and Adults with ADHD (CH.A.D.D.)
81 Professional Place, Suite 201
Landover, MD 20785
301 306-7070
- Obsessive Compulsive Foundation, Inc. (OCF)
90 Depot St., P.O. Box 70
Milford, CT 06460-0070
203-878-5669