Obsessive and inattentive

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Mr. C, age 20, has impaired attention, debilitating compulsions, and tic disorder. Can he be safely treated with a psychostimulant without exacerbating his obsessive-compulsive disorder or tics?

CASE Perfect breath

Mr. C, a 20-year-old college student, is diagnosed with obsessive-compulsive disorder (OCD), attention-deficit/hyperactivity disorder (ADHD), and tic disorder (TD). His obsessions consist of a persistent sense that he is not breathing "correctly" or "perfectly." He compulsively holds his breath to "rush blood to my head" until "the pressure feels just right." Mr. C says that his OCD has had longstanding, significant negative impact on his academic performance and capacity to engage in other activities. Tics have been present for years and manifest as coughing and throat-clearing. After multiple syncopal episodes from breath-holding with Valsalva maneuver—some of which caused falls and head injury—Mr. C is admitted to a residential psychiatric unit specializing in treating OCD. At the time of his admission, his Yale-Brown Obsessive Compulsive Scale (Y-BOCS) scores[1,2] are 23 total, 12 on the obsessions subscale, and 11 on the compulsions subscale, indicating moderate to severe illness. Cognitive-behavioral therapy (CBT) is offered, along with a combination of escitalopram, 60 mg/d, and quetiapine, 50 mg/d. Quetiapine is over-sedating at subtherapeutic doses and Mr. C's compulsions worsen. He reports that "[it] took longer and longer to get the 'just right' feeling.'" Quetiapine is discontinued and risperidone, 0.5 mg/d, is started, which decreases the frequency of his tics. When he is discharged after a 36-day stay, Mr. C's Y-BOCS scores are greatly improved at 13 total, 7 on the obsessions subscale, and 3 on the compulsions subscale.

Mr. C's psychologist refers him to our outpatient clinic for continued psychiatric evaluation and treatment of his OCD, ADHD, and TD. At this time, he is prescribed escitalopram, 60 mg/d, and risperidone, 0.5 mg/d, along with CBT with his psychologist. We do not readminister the Y-BOCS at this time, but Mr. C reports that his OCD is "60% improved." However, he describes prominent obsessive thoughts regarding his breathing similar to those he experienced before residential treatment. These obsessive thoughts arise in the context of specific environmental "triggers," such as other people coughing or his own tics. The obsessions lead to compulsive urges to engage in breath-holding rituals. Mr. C experiences the thoughts and compulsions as deeply troubling and they consume 5 to 6 hours each day. Mr. C reports impaired concentration in class and during studying: "I can focus for 5 minutes, then not for 2 minutes, then for 3 minutes… I can never stay focused for more than a couple minutes," before becoming distracted "by my OCD" or other environmental stimuli. We note on exam prominent breath-holding occurring

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Table 1

Evidence of effect of psychostimulants on tics

Study/disorder(s)	Medication and study design	Relevant findings
Lipkin et al, 1994[9]; ADHD without TD	Chart review (N = 122) to determine the incidence of tics or dyskinesias in children treated with stimulants	Approximately 9% of children developed tics or dyskinesias, which predominantly were transient, with <1% developing chronic tics or Tourette's syndrome. Personal or family tic history and medication selection or dosage were not related to onset of tics or dyskinesias
Gadow et al, 1995[15]; ADHD with TD	Methylphenidate variable dose, placebo-controlled, 2-week trials (N = 24)	All children's ADHD symptoms improved. At a 0.1 mg/kg dose, motor tics observed in the classroom increased, but there were fewer vocal tics observed in the lunchroom
Castellanos et al, 1997[10]; ADHD with Tourette's syndrome	Methylphenidate, dextroamphetamine, variable-dose, double-blind, placebo-controlled, 9-week crossover (N = 20)	3 patients had consistent worsening of tics while taking stimulants. Stimulants reduced hyperactivity rates compared with placebo (P = .03). Stimulants improved ADHD symptoms and had acceptable effects on tics. Methylphenidate was better tolerated than dextroamphetamine
Gadow et al, 1999[11]; ADHD with TD	34 methylphenidate-treated children, followed at 6-month intervals for 2 years	No evidence that frequency or severity of motor or vocal tics changed during maintenance therapy
Tourette Syndrome Study Group, 2002[13]; ADHD with TD	Clonidine alone, methylphenidate alone, clonidine plus methylphenidate, or placebo	Worsening of tics was not reported in any group at a rate significantly higher than placebo. Tic severity was more reduced in the 2 clonidine groups than in the methylphenidate group
Lyon et al, 2010[14]; ADHD with Tourette's syndrome	Dexmethylphenidate, single-dose challenge. Ten patients with or without TSP	Acute dexmethylphenidate administration resulted in tic suppression but did not augment TSP
Gadow et al, 2007[12]; ADHD with TD	Double-blind, placebo-controlled, 2-week trials each of 3 doses of methylphenidate and placebo (N = 71)	MPH-IR did not alter the overall severity of TD or OCD behaviors. Teacher ratings indicated that MPH-IR therapy decreased tic frequency and severity

ADHD: attention-deficit/hyperactivity disorder; MPH-IR: methylphenidate immediate release; OCD: obsessive-compulsive disorder; TD: tic disorder; TSP: tic suppression protocol

Clinical Point

Tic suppression has been reported with psychostimulants, as well as a differential effect of stimulants on motor vs vocal tics

several times per minute. Mr. C says his OCD has not impaired his ability to socialize.

Mr. C notes that he has been exposed to an array of CBT techniques, but he has difficulty using these techniques because his "mind wanders" or he lacks "motivation." He admits he occasionally has taken a classmate's ADHD medication (mixed amphetamine salts [MAS], dose unspecified) and found it improved his ability to focus on his academic work.

How would you treat Mr. C's symptoms?

a) increase escitalopram to 80 mg/d
b) replace escitalopram with an alternate selective serotonin reuptake inhibitor or serotonin-norepinephrine reuptake inhibitor
c) increase risperidone to augment escitalopram or add a different augmenting agent, such as clomipramine
d) begin bupropion ER
e) begin MAS

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The authors' observations

Researchers have established a relationship among OCD, ADHD, and TD across all combinations of comorbidity (OCD and ADHD,[3] ADHD and TD,[4] OCD and TD,[5,6]

Table 2

FDA-approved medications for ADHD, OCD, and TD

Disorder	Medications
ADHD	Amphetamine (racemic), atomoxetine, chlorpromazine (hyperactivity), clonidine extended release, dexmethylphenidate, dextroamphetamine, guanfacine extended release, haloperidol (hyperactivity, second-line), lisdexamfetamine, methylphenidate (racemic)
OCD	Clomipramine, fluoxetine, fluvoxamine, paroxetine, sertraline
TD/Tourette's syndrome	Haloperidol (Tourette's), pimozide (Tourette's)

ADHD: attention-deficit/hyperactivity disorder; OCD: obsessive-compulsive disorder; TD: tic disorder

Source: Reference 21

and all 3 entities[7]). Data suggests a poorer prognosis for OCD when comorbid with either or both of these conditions.[8] Researchers have raised concerns that psychostimulants could exacerbate or potentiate tic behaviors in patients with ADHD,[9,10] although safe and effective use of these medications has been documented in controlled trials of patients with comorbid ADHD and tics.[11-13] Furthermore, tic suppression has been reported with psychostimulants,[14] as well as a differential effect of stimulants on motor vs vocal tics.[15] Despite these data (***Table 1***),[9-15] the FDA regards using psychostimulants in patients with TD as a contraindication,[16] although clinicians often recognize that this practice may be unavoidable in some circumstances because of high comorbidity rates. Psychostimulants could exacerbate obsessions or compulsions in some patients because of their dopaminergic properties or through mitigation of the purported anti-obsessional properties of dopamine antagonists.[17]

Although there is evidence that the prevalence of prescribed psychostimulant abuse is low among ADHD patients,[18] diversion of prescribed medication is a risk inherent in the use of these agents, particularly among college-age patients.[19,20]

TREATMENT Weighing options

To manage impaired attention and executive function difficulties secondary to ADHD, we offer Mr. C several options, including bupropion, modafinil, and memantine augmentation. Mr. C asks for a psychostimulant because exam week is approaching and he wants a treatment with quick therapeutic effect. We discuss with Mr. C the potential for dopaminergic agents, such as psychostimulants, to exacerbate tics or OCD symptoms. Ultimately, we prescribe immediate-release MAS, 20 mg/d.

Two days later, Mr. C says he has taken 3 MAS doses and describes a marked reduction in obsessions, significant decrease in frequency of "triggers," and greater capacity to use CBT saying, "when I am [triggered], I am able to move past the urges without doing any compulsions." Daily time spent "stuck on" obsessions or compulsions decreases from 5 to 6 hours per day to "about 2 and a half minutes."

Mr. C reports a modest increase in the prevalence of tics, experienced as "little throat clears and quick stuttering of breath." He notes that, although in the past such tics would be followed by urges for "perfecting the tic and making it feel just right," he presently "had no desire to do so."

Given Mr. C's rapid clinical improvement, how would you proceed?

a) continue the present regimen
b) replace immediate-release MAS with a long-acting MAS preparation
c) cross-taper MAS with a dopaminergic agent, such as atomoxetine or bupropion
d) none of the above

continued

Clinical Point

Psychostimulants could exacerbate obsessions or compulsions in some patients because of their dopaminergic properties

Clinical Point

Diversion of psychostimulants is a risk inherent in the use of these agents, particularly among college-age patients

Related Resources

- Pliszka SR. Treating ADHD and comorbid disorders: psychosocial and psychopharmacological interventions. New York, NY: The Guilford Press; 2011.
- Pollak Y, Benarroch F, Kanengisser L, et al. Tourette syndrome-associated psychopathology: roles of comorbid attention-deficit hyperactivity disorder and obsessive-compulsive disorder. J Dev Behav Pediatr. 2009;30(5):413-419.

Drug Brand Names

Atomoxetine • Strattera
Bupropion • Wellbutrin, Zyban
Chlorpromazine • Thorazine
Clomipramine • Anafranil
Clonidine extended release • Kapvay
Dexmethylphenidate • Focalin
Dextroamphetamine • Dexedrine
Escitalopram • Lexapro
Fluoxetine • Prozac
Fluvoxamine • Luvox
Guanfacine • Intuniv, Tenex
Haloperidol • Haldol
Lisdexamfetamine • Vyvanse
Memantine • Namenda
Methylphenidate • Methylin, Ritalin
Modafinil • Provigil
Pimozide • Orap
Quetiapine • Seroquel
Risperidone • Risperdal

Disclosure

The authors report no financial relationship with any company whose products are mentioned in this article or with manufacturers of competing products.

OUTCOME Sharper focus

Increasing MAS immediate release from 20 mg/d to 30 mg/d suppresses Mr. C's obsessions and compulsions for 8 hours. On the 19th day of treatment, MAS immediate release was replaced with an extended release formulation, 30 mg/d, which preserves therapeutic effect and tolerability for 16 weeks. Repeat Y-BOCS yields 9 total, 3 on obsessions subscale, and 6 on compulsions subscale scores.

One month later, Mr. C reports that his symptoms have been "improving ever since" the previous appointment. He continues to be able to access skills for managing his OCD and is doing well in his 2 accelerated summer courses, saying "I focus really well" in 3-hour class sessions. On exam, tic behaviors are nearly absent. Mr. C describes occasional bouts of anxiety associated with urges to engage in tic behaviors, in turn arising from fear of symptomatic recurrence as he worked toward stopping smoking as advised by his primary care physician and psychiatrist.

The authors' observations

The results of the repeat Y-BOCS are consistent with improvement in obsessions but possible worsening of compulsions since Mr. C was discharged from residential treatment. Alternatively, compulsions may have worsened immediately after discharge and declined again with introduction of MAS.

A substantial body of literature describes the challenges associated with treating ADHD with comorbid tics, including the relative degree of risk of tic exacerbation associated with treating ADHD with psychostimulants. The range of FDA-approved pharmacologic options for treatment of this comorbidity is limited (***Table 2, page 45***),[21] particularly given the risk for tardive dyskinesia associated with the typical antipsychotics haloperidol and chlorpromazine. Data support using the α-2 agonist clonidine to treat hyperactivity associated with ADHD[22] and TD[23] and an extended-release preparation of this medication is FDA-approved for the former but not the latter indication (an α-2A receptor subtype agonist, guanfacine, also is FDA-approved for ADHD in pediatric patients). Mr. C's experience of robust, sustained reduction in obsessions, if not compulsions, after treatment with MAS is consistent with the few studies of stimulant use in ADHD with comorbid OCD.[24,25]

Effective treatment of ADHD may help Mr. C better access CBT strategies and thereby potentiate treatment of comorbid OCD.

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Clinical Point

Data support using the α-2 agonist clonidine to treat hyperactivity associated with ADHD and TD

Bottom Line

Comorbidity among attention-deficit/hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), and tic disorder (TD) is common. Psychostimulants are a first-line treatment for ADHD but could exacerbate symptoms of OCD or TD. Literature supporting treatment options is limited, but some studies suggest improvement in OCD symptoms with psychostimulants in the setting of comorbid ADHD.