

Assessment and management of attention-deficit hyperactivity disorder in adults

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Abstract

ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD) IS ESTIMATED to affect 2%–6% of adults. The symptoms in adults with ADHD mirror those in children with the disorder and are associated with significant educational, occupational and interpersonal difficulties. Double-blind, placebo-controlled trials have established that adult ADHD is responsive to stimulant medication treatment. New medications and psychotherapeutic approaches are being developed in an effort to achieve optimal treatment effects in this population. We review the available literature and provide an approach to the assessment and management of ADHD in adults.

CMAJ 2003;168(6):715-22

Case

A single 36-year-old woman is referred for a psychiatric evaluation to explore occupational and personal problems in her life. She reports that she has “always” had problems concentrating on her work, felt restless and acted impulsively (e.g., made comments to people that she later regretted). She describes herself as chronically disorganized. She currently works as a computer technician and says that her work evaluations have indicated that she has often been late for meetings, made careless errors and disrupted her coworkers with her constant chatter. As for personal relationships, she reports having had few friends. She suspects that she “burnt out” her friends with her high energy level and admits that her mind wanders during serious conversations, leaving her friends feeling that she is selfish or does not care. Beyond these difficulties, the woman is in good physical health, with no history of serious childhood illnesses. When asked about her childhood, she admits that she frequently got into trouble for “acting before thinking.” Her report cards indicated that she was working below potential and that she had “atrocious handwriting.” She was eventually placed in a special class because she talked constantly and “would not sit in her seat.”

Are the woman’s symptoms and history consistent with adult attention-deficit hyperactivity disorder (ADHD)? What steps should be taken to confirm or rule out a diagnosis of ADHD? If the woman does have the disorder, what can be done to manage her symptoms?

People with attention-deficit hyperactivity disorder (ADHD) are often inattentive, hyperactive and impulsive to a degree that is excessive compared with their peers. Although ADHD has historically been conceptualized as a childhood disorder, it is now recognized as a

lifelong disorder in many cases and is associated with profound impairment.

To date, large-scale epidemiological studies have not examined the prevalence of adult ADHD because structured diagnostic interviews for mental disorders in adults do not include ADHD. If a conservative estimate of the prevalence of ADHD among children is 4%¹ and there is a 50% remission rate from childhood to adulthood,² the prevalence among adults should be about 2%. Research involving community samples has indicated that clinically significant symptoms are equally prevalent among men and women with ADHD,³ whereas in children with the disorder they are more prevalent among boys than among girls.⁴⁻⁶ The lack of a difference between men and women may reflect a referral bias, because there are no data to suggest different sex-specific rates of remission.

Research into the neurobiological features of ADHD in adults has had a substantial impact on establishing the validity of this disorder.⁷⁻¹⁰ Functional MRI studies have shown activity in the fronto-striatal networks in adults with ADHD and activity in the anterior cingulate gyrus in subjects without the disorder.¹¹ Positron emission tomography studies have shown decreased frontal cortical activity in affected adults¹² and have indicated that methylphenidate increases extracellular dopamine levels by blocking the dopamine transporter (DAT), particularly in the striatum.¹³⁻¹⁵ Adults with ADHD have been found to have up to a two-fold increase in DAT-binding potential.¹⁶ In addition, family and twin studies have shown that the disorder has a heritability of 0.8, which is higher than that of any other psychiatric disorder.¹⁷ Two dopamine receptor genes (D4 and D2) and the DAT gene have been implicated in increasing the susceptibility of people to ADHD.¹⁸⁻²² In addition, adults with ADHD have been found to have genetic polymorphisms in the D4 receptor compared with healthy control subjects²³ and a distinct pattern of neuropsychological deficits, including difficulty in working memory and executive function.²⁴

Although many cases of ADHD are appropriately diagnosed and managed in childhood by family physicians, pediatricians and child psychiatrists, many others are not diagnosed until adulthood. Adults with ADHD may face physicians who are unfamiliar with the subtleties of adult presentations of a classically childhood disorder, and child psychiatrists are often not willing to take on adult patients.

In this review we examine the developmental course of ADHD, give a stepwise approach to the assessment and diagnosis of adults with the disorder and discuss an approach to patient management.

Developmental course

ADHD is associated with a distinct pattern of challenges at each stage of development.²⁵ In preschool, children with the disorder tend to have great difficulty with quiet, focused activities (e.g., circle time). They have trouble cooperating with other children, engage in less play than their peers and have difficulty managing transitions.²⁶ In addition, they tend to be more noncompliant with adults' requests and are less socially skilled than children the same age.²⁷

In elementary school, children with ADHD continue to experience conflict with peers. They may have trouble organizing school-related tasks (e.g., doing homework and keeping their desk in order) and in general underachieve in school, even when they have the intellectual potential to do well. Activities of daily living, such as grooming and hygiene, can be a struggle for them. In addition, children at this age often tend to have associated problems such as messy handwriting, difficulty with sleep, oppositional behaviour, increased risk of accidents and enuresis.²⁸⁻³⁰

Contrary to the popular belief that children outgrow ADHD in adolescence, longitudinal studies³¹⁻⁴² have shown that 80% of children with ADHD still exhibit symptoms in adolescence, a period of particular stress and impairment. At

school, their struggle with inattentive, hyperactive and impulsive behaviours often leads to difficulties completing projects and homework, and as a result they often do not achieve their academic potential. At home, they have more conflict with their parents than do adolescents without ADHD. In addition, adolescents with ADHD tend to be immature, get into trouble when not supervised, have poor social skills and engage in high-risk activities (e.g., reckless driving, cigarette smoking, unprotected sex, marijuana use).³¹⁻⁴⁵

In the adult years, people with ADHD are at higher risk than those without the disorder of dropping out of school, being fired from their jobs and having marital problems.⁴⁶ In addition, they typically have fewer years of schooling, lower occupational achievement and poor social skills.⁴⁵ It is therefore not surprising that adults with ADHD experience higher levels of anxiety and depression than the general population. In addition, recent research has identified an increased risk of poor medical health,⁴⁷ serious motor vehicle crashes,⁴⁸ cigarette smoking⁴⁹ and drug abuse⁵⁰ among adults with the disorder. Our clinical experience suggests that adults with ADHD are attracted to occupations that are exciting and busy and have an element of risk (e.g., sales, stock-broking, entrepreneurial ventures). Many adults with ADHD in our clinic report frequent changes in employment, poor planning abilities (e.g., organizing finances, handling course work at college), messiness, dangerous driving, unstable relationships or social isolation, and engagement in leisure activities that are highly absorbing or stimulating (e.g., downhill skiing, high-contact sports, surfing the Internet). They also express difficulty organizing their homes (e.g., cooking regular meals, cleaning) and managing their children (e.g., packing their lunches, getting them to appointments on time).²⁵

Diagnostic assessment

The assessment of adults with ADHD is similar to that of children with the disorder. The process involves documenting current and past symptoms, establishing that the symptoms cause impairment, obtaining a developmental and psychiatric history, and performing a physical examination (Box 1). Several diagnostic evaluation forms for the assessment of ADHD in adults are available to help document all the necessary information.⁵¹

In accordance with DSM-IV criteria for ADHD¹ (Box 2), the clinician must assess current symptoms (i.e., in the past 6 months) and those in childhood (i.e., before the age of 7 years). Obtaining a childhood history of ADHD is an essential component of the assessment. Self-report rating scales are available to help assess whether the ADHD symptoms were present to a significant degree in childhood.⁵¹⁻⁵³ Patients may have poor insight or have difficulty accurately recalling their symptoms during childhood. Thus, in addition to gathering information from the patient, it may be useful to obtain school records and report cards as objective evidence of childhood onset of the disorder. For example,

Box 1: Steps in the diagnosis of attention-deficit hyperactivity disorder (ADHD) in adults

1. Assess current ADHD symptoms (within the last 6 months) using rating scales with adult norms.
2. Establish a childhood history of ADHD.
3. Assess functional impairment at home, work and school and in relationships.
4. Obtain developmental history, including during prenatal, childhood and school years.
5. Obtain psychiatric history: rule out other psychiatric disorders or establish comorbid diagnoses (e.g., learning disabilities, mood and anxiety disorders, personality disorders and substance abuse, especially marijuana abuse)
6. Obtain family psychiatric history, especially concerning learning problems, attention and behaviour problems, ADHD and tics. Enquire about all first-degree relatives (parents, siblings and offspring).
7. Perform physical examination: rule out medical causes of symptoms (e.g., serious head injury, seizures, heart problems, thyroid problems) or contraindications to medical therapy (e.g., hypertension, glaucoma).

when examining school records it is useful to look for any comments written about the patient's attention (e.g., "daydreams," "can't focus"), activity level (e.g., "always up from her desk," "can't sit still") and impulsive behaviour (e.g., "interrupts students when they're working," "needs to learn to wait his turn or raise hand before answering").

Current ADHD symptoms can be assessed using standardized rating scales.⁵⁴ Scales for adults typically contain the 18 ADHD symptoms from the DSM-IV,¹ each of which is rated on its frequency in the past 6 months using a 4-point scale, from 0 (never or not at all) to 3 (very often or very much). A patient is considered to meet the diagnostic criteria for ADHD–inattentive type if he or she has significant difficulty (a score of 2 or 3) for 6 or more of the 9 items on the list of inattentive symptoms. A patient is considered to have ADHD–combined type if he or she also has significant difficulty (a score of 2 or 3) for 6 or more of the 9 items on the list of hyperactive/impulsive symptoms. It is relatively rare for adults to meet the criteria for ADHD–hyperactive/impulsive type, in which the patient meets the criteria for 6 or more of the hyperactive/impulsive symptoms without meeting the threshold for inattentive symptoms. Norms for adults have previously been published⁵⁵ and provide clinicians with a benchmark against which to measure their patient's behaviour. Adults with ADHD may identify problems associated with ADHD (e.g., procrastination, lack of motivation, mood lability, low self-esteem) as their primary concern rather than the core symptoms. The Brown Attention-Deficit Disorder Scale⁵⁶ is an instrument that can help identify areas of difficulty for the patient because it includes many of the problems encountered by adults with ADHD.

As with assessments of children with ADHD, when assessing adults it is beneficial to have one or more collateral informants complete the standardized rating scales. Ideally, there should be someone who knows the patient well enough to rate their current symptoms (e.g., spouse, close friend, parent, sibling) and someone who knew the person well enough as a child to rate their childhood behaviour (e.g., parent, aunt, uncle). The rationale for having a collateral informant stems from concerns about the reliability of patient self-reports about

their ADHD symptoms. Some research suggests that adults with ADHD may either underreport⁵⁷ or overreport symptoms.⁵⁸ Recent studies have shown high correlations between self-reports and collateral reports of ADHD symptoms,^{59,60} which indicates that, if the clinician believes the patient has good insight, self-reports can be used on their own. Most ratings scales of adult ADHD have a version for the patient and one for the collateral informant.

Obtaining information about a patient's developmental history is important because it helps to establish that the symptoms were present in childhood and to rule out other

Box 2: Assessment and diagnosis of ADHD in adults

Assessment

Ask the patient to indicate how often, using a 4-point scale (0 = "never or not at all," 1 = "sometimes or somewhat," 2 = "often or pretty much" or 3 = "very often or very much"), he or she has experienced the following symptoms of ADHD in the past 6 months and whether they have persisted for at least 6 months:

(1) *Inattention*

- Does not pay close attention to what he or she is doing and makes careless mistakes
- Has trouble paying attention to tasks
- Has trouble following verbal instructions
- Starts things but does not finish them
- Has trouble getting organized
- Tries to avoid doing things that require a lot of concentration
- Misplaces things
- Is easily distracted by other things going on
- Is forgetful

(2) *Hyperactivity–impulsivity*

- Fidgets with hands or feet
- Has trouble sitting still
- Feels restless and jittery
- Has trouble doing things quietly
- Is a person who is "on the go"
- Talks too much
- Acts before thinking things through
- Gets frustrated when having to wait for things
- Interrupts other people's conversations

Diagnosis

All of the following criteria must be met for a diagnosis of ADHD:

- A. Six or more of the symptoms of either (1) or (2) above are rated as "often or pretty much" or "very often or very much" and have persisted for at least 6 months. (For adults over the age of 50 years, only 3 or more symptoms rated "often" or "very often" are required to meet diagnostic thresholds.)
- B. Some symptoms of inattention or hyperactivity–impulsivity that caused impairment were present in childhood.
- C. Some impairment from the symptoms is present in 2 or more settings (e.g., at work, at school, at home, during leisure activities, when driving a car).
- D. There must be clear evidence of clinically significant impairment in social, academic or occupational functioning.
- E. The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia or other psychotic disorder and are not better accounted for by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder or personality disorder).

The symptoms and diagnostic criteria are modified from the DSM-IV.¹

psychiatric conditions (see Box 3). The assessment of comorbid conditions and differential diagnoses can be difficult, but it is necessary because adults with ADHD have high rates of mood, anxiety, learning and personality disorders, and substance use and abuse.^{61,62} Comorbid conditions may require treatment in their own right, they may provide a relative contraindication to the use of stimulants, or they may alter the expected outcome of treatment. The management of ADHD with various comorbid conditions is beyond the scope of this review, but it has been addressed elsewhere.^{25,63} When in doubt, clinicians should consider consulting a psychiatrist who has expertise in this area.

The Adult Self-Report Inventory-4 and the Adult Inven-

tory-4 (to be given to the collateral informant) are screening tools designed to assist clinicians with the assessment of comorbid conditions and differential diagnoses.⁶⁴ These symptom inventories are particularly useful in this population because, in addition to the most common conditions in the DSM-IV, they include developmental disorders not often found in adult screening tools (e.g., Tourette's syndrome, Asperger's syndrome, learning problems, conduct disorder, oppositional defiant disorder) and problems that often accompany ADHD (e.g., temper outbursts, procrastination).

Because ADHD is highly familial, it is important to screen for a family psychiatric history of ADHD. In addition, the clinician needs to enquire whether first-degree relatives have had difficulty with tics, drug use and criminal behaviour, because these problems are not uncommon among adults with ADHD and may help identify risks for the patient being evaluated.

A physical examination should be conducted to rule out medical causes of the symptoms (e.g., neurological problems and thyroid abnormalities), to screen for problems that are often consequences of having ADHD (e.g., smoking, illicit drug use, fractures, poor nutrition, poor sleep hygiene), to identify contraindications to treatment with stimulant medication (e.g., hypertension, glaucoma) and to record the patient's baseline weight, which may change with treatment.

Electronic testing (e.g., continuous performance tests) and neuropsychological tests may contribute to the clinicians' overall impressions, but neither has good sensitivity or specificity on their own for diagnostic purposes.⁶⁵ Psychoeducational testing is beneficial if the clinician suspects a learning disability.

Management

After making the diagnosis, the physician is in a good position to inform the patient which aspects of the developmental history, current and past impairment, and symptom ratings are indicative of ADHD and, if applicable, which aspects are indicative of a comorbid disorder. This is an area of keen interest for the patient, and the information will probably trigger feelings of relief ("Now I understand why I was always different"), sadness ("I don't want to have something wrong

Box 3: Assessment of patient's developmental history

Prenatal

- Did your mother use drugs, nicotine or alcohol when she was pregnant with you?
- Do you know if there was difficulty during pregnancy or childbirth such as diabetes, eclampsia, cord around the neck, breech delivery or lack of oxygen?

Childhood

- Were you described as a very active or impulsive child?
- Did your parents complain that you were difficult?
- Did you have any accidents requiring hospital treatment as a child?
- Were you exposed to any physical, verbal or emotional abuse? Were you neglected?
- Did you have any serious trauma, exposure to violence or losses as a child?
- Did you have any medical illnesses as a child?
- Did you ever lose consciousness?

School

- How did you do academically in elementary school? In high school?
- Were you ever enrolled in college or university? Did you drop out? Why?
- Did you ever fail a grade?
- Did you ever have psychological testing or were told you had a learning disability?
- Did you receive learning assistance or were you ever placed in a special class?
- Were you ever suspended or expelled from school?
- Did you have any special problems with reading? Arithmetic? Writing?
- Did teachers complain that you were not achieving your potential or were not trying your best?
- Was your performance at school variable or unpredictable?

Family psychiatric history

Have your parents, siblings or children had any of the following problems?

- ADHD
- Depression
- Anxiety (worrying, fears, extreme embarrassment in front of people, repetitive behaviours that do not make sense)
- Psychosis (hearing voices, seeing things, or having fixed, wrong ideas)
- Tics (involuntary and repetitive movements or sounds)
- Substance abuse or alcoholism
- Learning disability
- Behaviour problems or problems with the law
- Suicide attempt or self-destructive behaviour

with me”) and possibly anger (“Why didn’t I receive any help for this as a child?”). Treatment consists of 3 parts: providing education about ADHD and psychological support to the patient and family, medication treatment, and follow-up and continued support.

Psychological treatment

There is a scarcity of controlled studies on the efficacy of psychosocial treatments for adults with ADHD. Clinicians with experience in treating adults with ADHD have used a variety of psychological interventions, including education about the disorder, involvement in a support group, skills training (e.g., vocational, organizational, time management, financial) and coaching. Patients should be told that ADHD is a neurobiological developmental disorder, with further explanation of the relation between symptoms and maladaptive behaviours. Participation in support groups, such as the Canadian branch of the international organization Children and Adults with Attention Deficit Disorders (www.chaddcanada.org), can have the dual benefit of providing support and social contacts as well as educating the patient about ADHD and useful coping strategies. Coping strategies and skills training (e.g., how to use a day planner, developing routines for meal time, delegating challenging tasks) may help patients function better in their daily lives. Some adults may benefit from having a coach or mentor who provides encouragement and helps them handle difficult situations.^{66–72} Cognitive behaviour therapy, training of parenting skills for adult parents with ADHD, vocational counselling and educational remediation may be helpful interventions, but controlled studies are needed to investigate their usefulness. Wilens and McDermott have reported benefits of using cognitive behaviour therapy in

combination with medication in this population.⁷³ It is hoped that future studies will investigate the efficacy of other psychological treatments designed to help adults with ADHD.

Pharmacological treatment

Medications for the treatment of ADHD in adults are listed in Table 1. Medication has been the first line of treatment of ADHD and has been shown to be effective and safe in adults and in children.^{74–78} Although early studies were flawed by poor selection criteria, problematic outcome measures, exclusive use of self-report or use of pediatric dosing schedules, there have been 9 double-blind, placebo-controlled crossover studies that used standardized methods of diagnosis and outcome. A meta-analysis of the findings from these studies showed a weighted mean response rate of 57% to methylphenidate, 58% to dextroamphetamine and 10% to placebo.⁷⁸ Several studies have suggested that symptom reduction is dose dependent, with higher response rates accompanying higher doses.^{78–80} Recently, atomoxetine (Strattera) became the first medication to receive approval by the US Food and Drug Administration for the treatment of ADHD in adults.

A trial of stimulant medication requires titrating doses while monitoring ADHD symptoms (by means of serial administration of a rating scale) and side effects (e.g., hypertension, insomnia, headaches, weight loss). Monitoring requires that the patient take the medication every day for 1 week. The optimal dose is achieved when no further reduction in ADHD symptoms occurs and side effects are still judged to be manageable. Compliance is usually better with a long-acting stimulant. There is evidence that stimulant treatment of ADHD substantially decreases the risk of fur-

Table 1: Medications for the treatment of ADHD in adults

Medication	Dose*	Duration of action, h	Schedule	Rate of titration
First line				
Methylphenidate	Start at 5–10 mg orally twice daily, at breakfast and lunch; titrate up to 0.5–1.0 mg/kg daily. Usual maximum dose is 80 mg/d	3.5	3–4 times daily	5–10 mg every 3–7 d
Dextroamphetamine	Start at 5 mg orally once daily, at breakfast, and then increase to twice daily, at breakfast and lunch. Titrate up to 0.5 mg/kg daily. Usual maximum dose is 40 mg/d	5	2–3 times daily	5 mg every wk
Second line				
Desipramine or imipramine (response after 4 wk)	Start at 50 mg/d; usual maximum dose is 200 mg/d. Measure blood level to determine whether patient is in usual therapeutic window, because there is significant interindividual variability	24	Every night	25–50 mg every wk
Bupropion SR (response after 5 wk)	Start at 100 mg in the morning, with a maximum of 150 mg twice daily	12	2 times daily (8 h apart)	50 mg every wk

*Medications should be titrated slowly and as tolerated up to the dose that provides optimal benefit while minimizing adverse events. The dose response varies considerably between patients; therefore, the doses cited above serve only as a guide.

ther substance abuse in patients who have a current substance abuse problem.⁸¹ However, caution is required when treating such cases because it is difficult to assess current symptoms of ADHD in the face of active substance abuse, and the combined use of stimulants and street drugs can be dangerous. Furthermore, there is a risk of the patient selling his or her stimulants. Stimulants used as directed by adults who do not have a substance abuse problem do not cause euphoria and are neither habit forming nor addictive. Clinicians should not assume that it is possible to treat the substance abuse by treating the ADHD symptoms.^{82,83}

If the patient does not respond to or tolerate stimulant medication, treatment with an antidepressant may be considered. Double-blind, placebo-controlled studies of the efficacy of bupropion,⁸⁴ desipramine⁸⁵ and atomoxetine⁸⁶ in the management of ADHD in adults have shown these drugs to be slightly less effective than stimulants but more effective than placebo. Treatment response to tricyclic antidepressants in adults with ADHD is similar to the response in children, with 50%–66% of patients showing a clinically significant response. Atomoxetine is the first nonstimulant medication to be developed specifically for the treatment of ADHD and to have been initially pilot tested in adults rather than in children. Atomoxetine therapy represents an interesting option for adults who cannot tolerate stimulants, do not respond to them or require full-day coverage.

Table 2: Adverse events of medications used to treat ADHD

Medication; adverse event	Management
Stimulants	
Decreased appetite	Discuss dietary needs
Insomnia	Decrease late-day dosing; switch to long-acting medication; discuss sleep hygiene
Headache	If severe, consider change of dose, or switch to another stimulant or another medication
Nervousness or dysphoria	Consider use of antidepressant; rule out comorbid disorder
Tricyclic antidepressants	
Constipation	Recommend high-fibre diet
Dry mouth	Advise against drinks sweetened with sugar; recommend regular dental checkups and use of sugarless gum
Postural hypotension	Advise patient to get up slowly
Tachycardia	Lower dose
Bupropion	
Seizures	Keep doses within recommended maximum and ensure a maximum of 8 h between doses; avoid use of drug in patients at risk of seizures (those with eating disorder, alcohol dependence, history of seizures)
Insomnia	Recommend doses be taken earlier in day; or prescribe as single dose, to be taken in the morning
Headache	Adjust dose

Patients need to be informed of the side effects associated with the medication they are taking (Table 2). Side effects tend to decrease in severity and stabilize within the first 3 months of treatment.⁷⁸ Current practice guidelines^{87,88} suggest that patients be followed monthly until their condition is stable, and every 3 months thereafter to monitor symptoms, adverse events, compliance, vital signs, dosage and life stressors. There is no research on the risks or benefits of drug holidays in adults.

Long-acting stimulants have been on the market in the United States for several years and are under review for use in Canada. These new preparations include a 12-hour formulation of methylphenidate (Concerta), 10-hour formulations of methylphenidate (Ritalin LA, Metadate CD), a 6-hour formulation of dexamethylphenidate (Focalin) and a 12-hour formulation of dextroamphetamine (Adderall XR). Additional guidelines are available for the assessment and management of adults with ADHD, including references for titration of stimulants and management of medication side effects.^{87–89}

ADHD is an impairing and prevalent condition that can be reliably diagnosed and treated. Family physicians may wish to consult a psychiatrist with expertise in this area when treating difficult comorbid problems, when the patient's history suggests an onset in adulthood or when it is difficult to rule out mood, personality, developmental or learning disorders.

The case revisited

The patient reports that she has experienced 6 of the inattention symptoms and 7 of the hyperactivity–impulsivity symptoms of ADHD “often” or “very often” over the past 6 months. She reports having experienced all 18 symptoms in her childhood. Her roommate is asked to rate her current behaviour using the Adult Inventory–4; this collateral information indicates that the patient's behaviours are consistent with ADHD. No collateral informant is available to assess the patient's behaviour in childhood; however, teachers' comments on her report cards clearly indicate a long-standing history of attention problems and disruptive behaviour in school. The patient had a prior history of depression, although she is not depressed at the time of assessment. Her presenting problems associated with ADHD existed before and after the onset of her depression. Given the results of the assessment, her physician diagnoses ADHD–combined type (symptoms of both inattention and hyperactivity–impulsivity) and chooses a combination of medication and support to manage her symptoms. A trial of methylphenidate (15 mg orally, every 4 hours, 4 times during waking hours) is effective in reducing the severity of her symptoms, with mild appetite suppression and irritability as each dose wanes. The patient is switched to dextroamphetamine (15 mg orally twice daily) to improve compliance. At work, the patient requests assignments that are interesting but challenging, instead of rote tasks that she

finds boring and tedious. Socially, she monitors the physical distance between herself and others so that she can behave more appropriately. To improve her organizational skills, she learns how to use an electronic planner. Two years after the diagnosis, the patient is proud that she is still employed with the same company and is better able to form and maintain friendships.

This article has been peer reviewed.

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Competing interests: None declared for Ms. Murray. Dr. Weiss is on the speakers bureau, advisory board and/or acts as a consultant for GlaxoSmithKline, Eli Lilly, Novartis, Purdue Pharma, Circa Dia, Shire, Janssen-Ortho and Johnson & Johnson.

Contributors: Dr. Weiss and Ms. Murray both contributed to writing the initial draft and revising and approving the final version of the manuscript.

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Additional resources

- Adult ADHD: resources for people with ADHD (www.adult-adhd.com)
- American Academy of Child and Adolescent Psychiatry (www.aacap.org)
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