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Daniel Carlat, MD
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IN THIS ISSUE

Focus of the Month: Adult ADHD

- How to Treat Adult ADHD — 1
- Expert Q&A: — 1
Alyson Harrison, PhD
ADHD Overdiagnosis
- Table: Medications Most Commonly Used for Adult ADHD — 5
- Research Update — 6
 - N-acetylcysteine Shows Promise in Treatment of Co-Occurring PTSD and SUD
- CME Test — 7

Learning Objectives

After reading these articles, you should be able to:

1. Identify the most effective ways to assess and treat adult ADHD.
2. Describe the challenges in diagnosing ADHD in the adult population.
3. Summarize some of the current findings in the literature regarding psychiatric treatment.

How to Treat Adult ADHD

Aashish R. Parikh, MD
Staff psychiatrist, Veterans Affairs North Texas Health Care System
Assistant professor, University of Texas Medical School at Southwestern

Dr. Parikh has disclosed that he has been a speaker for Sunovion. Dr. Carlat has reviewed this article and has found no evidence of bias in this educational activity.

Over the past decade, it's become apparent that ADHD does not suddenly end when children grow up, and that the disorder often continues into adulthood. Since 2011, I have run a clinic specializing in adult ADHD. ADHD is relatively common in adults, with conservative estimates

Continued on page 2

In Summary

- There are a number of subtle clues to the presence of ADHD in adults, which you can ascertain with targeted questions.
- Stimulants are the first-line treatment for adult ADHD. There are many to choose from, but all fall into two categories: amphetamine and methylphenidate formulations.
- Non-stimulants, such as bupropion and atomoxetine, are recommended for adult ADHD patients who have failed stimulants and who have substance abuse issues.



ADHD Overdiagnosis

Alyson Harrison, PhD

Clinical director, Regional Assessment and Resource Center, Queen's University, Kingston, Ontario

Dr. Harrison has disclosed that she has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

TCPR: You run a screening clinic for adult ADHD at Queens University near Ottawa. You've had some interesting findings; can you describe them?

Dr. Harrison: Sure. The people that I see are generally university students who think they have ADHD but who were never diagnosed. Most of them were referred by a family physician, a counselor, or an academic advisor. We do an extensive evaluation to see if they meet DSM criteria. We now have data on 260 students, and we found that only 5% met DSM-IV diagnostic criteria for ADHD—that's only 14 people in total. The title of the forthcoming paper (currently being prepared for review) reporting these results is "Think Horses, Not Zebras," because if you've got a never-before-diagnosed young adult or adult coming into your office saying, "I think I have ADHD," chances are 95 out of 100 that the cause is something else.

TCPR: That's pretty remarkable. So what do you make of the 95% who thought they had ADHD?

Dr. Harrison: If you look at the symptoms of ADHD—inattention, problems



Continued on page 4

How to Treat Adult ADHD

Continued from page 1

of a 4%–5% prevalence in the adult population, equal in men and women (<http://tinyurl.com/grgb5j9>). However, only about 10% of adults with ADHD are receiving treatment for their condition (Kessler RC et al, *Am J Psychiatry* 2006;163(4):716–723).

Assessment

Before doing an ADHD assessment, keep in mind that most ADHD symptoms are nonspecific and can be present in many other psychiatric disorders—or even present in people without any disorder at all. I suggest a number of useful questions to ask patients below, but note that positive answers to any of them cannot “make” the diagnosis; instead, they are clues that may (or may not) prompt a suspicion of ADHD.

When patients come into my clinic, the first thing I do is to assess their motivation. It takes significant time and energy to see a psychiatrist, especially

given the shortage of practitioners and the long waits usually required. So I will ask, “Why are you coming in for an ADHD evaluation at this age? Why now? Have there been any major changes in your life recently?” Frequently, there’s a precipitating factor that prompts a patient to seek treatment, such as a promotion, increased work responsibilities or educational demands, the birth or adoption of a child, or a new marriage.

If a patient comes in and says, “I have poor attention,” I ask how long the problem has been going on. For my patients with ADHD, the most common answer is “my whole life.” Many of them have teary eyes when answering this question.

I’ll dig into patients’ education—for example, I’ll ask, “Was school a struggle for you?” They will often say yes, or they might say their problems didn’t surface until college, in which case I ask, “How long did it take you to get your degree?” Patients may say it took them many years and multiple attempts to attain it.

I like to ask about patients’ daily home life. For example, I’ll ask, “What does your bedroom closet look like?” and many will simply laugh, because it is so disorganized. I’ll also ask, “How often do you lose important things, like cell phones or keys?” and often patients will show me that they have these items tied to their waists, saying, “This is what I have to do to not lose them.”

I additionally ask about feelings of restlessness. The way I phrase this is not just, “Are you unable to sit still?” but rather, “Do you have an urge to constantly be on the go? What is it like to sit in a meeting? Are you able to stand in line at a coffee shop?” Given the growing data that ADHD may increase the risk of mortality (Barbaresi WJ et al, *Pediatrics* 2013;131(4):637–644), especially due to motor vehicle accidents, I will ask patients about the number of near misses they’ve had while driving.

After these initial questions, I will more systematically go through the formal list of ADHD symptoms. I don’t simply read off a list for patients to answer out loud—instead, I have them

fill out the ADHD Rating Scale IV With Adult Prompts (ADHD-RS-IV) in the waiting room. Then I go through the items with them during the interview, clarifying and asking patients to expand on select answers.

After the ADHD questions, I will do a psychiatric review of systems, because mood, anxiety, and trauma-related disorders are common in patients with ADHD.

If a patient describes symptoms of depression, it may be hard to tell whether the poor concentration is due to depression or due to ADHD. I find it helpful in these situations to ask about self-esteem. If most of the patient’s depressive symptoms are related to statements like, “I feel down on myself” or, “I feel like a failure,” I am more likely to consider ADHD, because ADHD often leads to poor self-esteem due to an inability to function well (Cook J et al, *Atten Defic Hyperact Disord* 2014;6(4):249–268. doi:10.1007/s12402-014-0133-2. Epub 2014 Mar 26). Anecdotally, I’ve found poor self-esteem to be more common in my female ADHD patients than my male ADHD patients.

ADHD has been found to increase rates of suicide attempts (Dalsgaars S et al, *Lancet* 2015;385(9983):2190–2196), probably in part because people with ADHD are impulsive, and some suicide attempts are impulsive acts (Chronis-Tuscano A et al, *Arch Gen Psychiatry* 2010;67(10):1044–1051). The key point is to ask about suicidal ideation in all patients you are screening for ADHD.

I make sure to take a good substance use history. I specifically ask about caffeine usage (which I don’t ordinarily do when interviewing patients without possible ADHD), and find that patients with ADHD are often using multiple energy drinks throughout the day. I ask about nicotine use, and I have observed an unusual pattern in which these patients smoke a small number of cigarettes a day, such as 4 or 6, as opposed to just saying “a half pack” or “a pack.” It’s possible they are dosing themselves with cigarettes to enhance attention.

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All editorial content is peer reviewed by the editorial board. Dr. Albucher, Dr. Gardiner, Dr. Lyman, Dr. Megna, Dr. Mick, Dr. Posternak, Dr. Puzantian, Dr. Spielmans, and Dr. Zuckerman have disclosed that they have no relevant financial or other interests in any commercial companies pertaining to this educational activity. This CME/CE activity is intended for psychiatrists, psychiatric nurses, psychologists and other health care professionals with an interest in the diagnosis and treatment of psychiatric disorders.

Continued on page 3

How to Treat Adult ADHD

Continued from page 2

I ask about family history, because ADHD is highly heritable: “Have any of your family members been diagnosed with ADHD?” To further clarify, I ask, “Whom do you suspect has problems with attention in your family?” In terms of past psychiatric history, I’ve found that patients with possible ADHD have had poor responses to multiple antidepressants and antianxiety meds.

When I get a patient’s medical history, I spend extra time on cardiac history to screen for preexisting cardiovascular disease. I’ll ask, “Have you ever been told that there is anything wrong with your heart? Have you had fainting spells, severe chest pains, or palpitations so severe that you had to go to the emergency room?” I try to ascertain whether there is a history of sudden cardiac death in the patient’s family, which can be difficult with some patients. My highest-yield question is, “Has anyone in your family younger than 35 passed away for an unknown reason?”

If a patient has a history of documented cardiac disease, before I prescribe a stimulant, I send a prepared letter to the patient’s cardiologist, which essentially asks, “In your opinion, do you think it is reasonably safe to use stimulants in your patient?” Most of the time, the cardiologist will approve. Only a few conditions are absolute contraindications to prescribing stimulants: cardiomyopathy, prolonged QT interval, short QT interval, Brugada syndrome, Wolff-Parkinson-White syndrome, and Marfan syndrome.

Research has not demonstrated an increased risk of serious cardiovascular events in healthy young and middle-aged adults receiving stimulant medications for ADHD (Habel et al, *JAMA* 2011;306(24):2673–2683). A baseline EKG is not required before starting a stimulant if there is no personal or family history of cardiac disease.

ADHD is a clinical diagnosis based on a clinical assessment and history. Neuropsychological testing has not been found beneficial for diagnosing adult ADHD. In my experience, unnecessary neuropsychological testing often serves

as a barrier to treatment, because of the time-consuming process of making an appointment and receiving a report. Nor is there any utility to be found in the many device-based “diagnostic tests,” such as the TOVA, CPT, quantitative EEG, and SPECT scans.

Medication treatment

Before I start any medication, I run a patient’s name through my state’s prescription drug monitoring program (PDMP). After querying the system, it can be quite obvious that someone is doctor-shopping in order to get stimulants, and I will confront patients with this information; they will need to seek specialized substance abuse treatment before I will treat them. But PDMPs are useful for other reasons, too. For example, when patients can’t remember all the medications they’ve been prescribed, a search of the PDMP can be helpful; however, note that only scheduled medications will be listed.

There are two main categories of drug treatment for ADHD: stimulants and non-stimulants. Stimulants have a much larger effect size than non-stimulants, in the range of 0.9 for stimulants as opposed to 0.45 for non-stimulants such as atomoxetine (Arnold LE, *J Atten Disord* 2000;3(4):200–211). For this reason, I encourage most patients to start with stimulants. If they are reluctant, I will say that they are the gold-standard treatment for ADHD, that we’ve been using them since the 1940s, and that they are safe at the prescribed dosages.

Among stimulants, there are essentially two main choices: amphetamine vs. methylphenidate preparations. Although studies have not shown any difference in efficacy between the two classes, my clinical impression is that amphetamines are somewhat more effective for adults, and for that reason about 90% of my adult ADHD patients are on one of the amphetamines.

My first choice is generic Adderall IR (mixed amphetamine salts, immediate release) because it is effective, very well tolerated, and cheap. I set a target dose of 0.5 mg per kilogram of body weight,

and I prescribe it twice daily, to be taken morning and noon. For the first week I have patients take 0.25 mg/kg, increasing to the target dose of 0.5 mg/kg in the second week. Methylphenidate is less potent, and its target dose is about 1 mg/kg. (See our trick for converting pounds to kilograms below.)

Easy Pound-to-Kilogram Conversion

1. Divide weight in pounds by 2
2. Subtract 10% from the result

Example: Calculating Adderall dosing for a 130 lb. woman

Divide weight by 2: $130 / 2 = 65$.
Subtract 10% (6.5, but you can round down for simplicity): $65 - 6 = 59$ kg.
Use rule-of-thumb Adderall dosing of 0.5 mg/kg, and round up to 60 kg:
 $0.5 \times 60 = 30$ mg, prescribed as 15 mg twice daily.

Regular dextroamphetamine is interchangeable with Adderall, and has the same dosing. However, it’s generally more expensive than Adderall.

Extended-release formulations

Some patients do better on extended-release medications, which yield more consistent serum levels of the stimulant. Adderall XR is my usual choice because it is generic, and the same total dose can be maintained when switching from the IR to the XR version. Although theoretically the duration of action of Adderall XR is long enough for once-a-day dosing, in my experience it must still be dosed twice daily for most patients.

In general, I avoid prescribing Vyvanse (lisdexamfetamine) as a first-line treatment because it is costly and no more effective than Adderall. Its advantages include being longer-acting, often allowing once-a-day dosing, and lower abuse potential, because it requires digestion in the GI tract before it is active. I’ve seen a lot of variability in responses to Vyvanse. When I have switched patients from Adderall formulations to Vyvanse, half of my patients have said, “This is great; it’s smooth and I don’t have a crash,” but

Continued on page 6

Expert Interview

Continued from page 1

concentrating—those same symptoms get listed in just about every condition in DSM. A few years ago, one of my grad students did a study where she looked at all the students in a first-year university psychology course; she had them complete a self-report checklist of ADHD symptoms, and at the same time complete a checklist evaluating levels of depression, anxiety, and stress. She found that the more depressed, anxious, and stressed students were the most likely to report higher levels of ADHD symptoms (Alexander SJ and Harrison AG, *J Atten Disord* 2013;17(1):29–37). And these were all young adults who had never been diagnosed with ADHD before. For the second part of her study, she had students who were coming into student health services complete the checklists and found that 33% of these students (who had never before been diagnosed with ADHD) scored high on self-report symptoms of ADHD (Harrison AG et al, *Canadian Journal of School Psychology* 2013;28(3):243–260). The implication is that the more stressed, depressed, anxious, and sleep-deprived someone is, the more likely they are to report symptoms of inattention and problems concentrating.

TCPR: So it isn't that people are necessarily feigning ADHD?

Dr. Harrison: Correct; it's that sometimes they're looking for an answer when they are feeling stressed or depressed. Patients report to us that they often go online looking for answers, and when you look online for information about stress and problems concentrating, you're going to find a lot of information about ADHD. But the sites often don't emphasize that you have to have a history of symptoms, and that you have to meet criteria for symptoms other than inattention.

TCPR: So some people are looking for solutions to their distress and latch onto ADHD as a possibility; they are not feigning the symptoms. But I assume there are plenty of people out there who *are* faking a diagnosis—do you see that as a problem?

Dr. Harrison: It is. There's a webpage called "How to Convince Your Shrink You've Got ADHD" (<http://tinyurl.com/crc4ldn>). It lists all the questions a psychiatrist is likely to ask, and tells you how to answer each one to increase the chances of getting a diagnosis and prescription for a stimulant. But even in these cases, it's not always simply people trying to abuse the drug, though of course that happens—they will also use it as a study aid. I've had a number of students who have admitted that they were just trying to exaggerate symptoms in order to be competitive. They will say, "Well, I have to be able to keep up with all the other people who want to get into med school or law school."

TCPR: What are some of the things we can be asking to help distinguish true ADHD from the various versions of feigned ADHD?

Dr. Harrison: Clinicians sometimes forget that there are five things you need to establish in order to make the diagnosis, and only one of them is having a sufficient number of symptoms. According to DSM-5, you also have to show that the symptoms were present before age 12, that they've been present in 2 or more settings, that they substantially impair the person in those settings, and finally, that they can't be better explained by something like anxiety or depression.

TCPR: And what are some of the questions you ask in your screening clinic in order to assess whether someone's condition is really ADHD?

Dr. Harrison: One of the first questions we ask is, "When did your symptoms first start?" If they say, "First year of university or the last year of high school," then it can't be ADHD according to the criteria. We'll also ask, "How did the symptoms substantially impair you? Have you had car accidents? Do you run red lights? Have you had sexually transmitted diseases because you hadn't thought ahead to take precautions? Have you been arrested? Have you lost jobs? Have you been formally reprimanded?"

TCPR: And what type of answers do you get from people who are more likely to have ADHD?

Dr. Harrison: The patients that I see who really have ADHD will say, "I can't drive because I just can't keep my mind focused on what I'm doing. I've been fired from all these jobs because I sleep in late or I forget. I've lost relationships because I'm just not paying attention. I lost my electricity because I forgot to pay the bill." And then there are other patients who say, "I haven't had any of those kinds of consequences, but I know I could have done better." Well, there are a lot of people who "could have done better." They could have been a contender in the Olympics, but instead they're just the national champ or the state champ. That doesn't mean that they're disabled.

TCPR: So it sounds like you do a bit of digging to really ascertain what's going on.

Dr. Harrison: Right. And in the young adult age group, substance use is common, so I do a thorough history. I don't just say, "Do you drink alcohol or use drugs?" I'll say, "What drugs have you have tried?" and, "When you drink, what do you like to drink?" We've had patients who say, "I'm smoking marijuana. I'm going through 2 or 3 grams a day." One guy said he drank sometimes, and I said, "So if you went out with your friends for an evening, how many beers would you go through? 24 or so?" His response was, "Yeah, that sounds about right." It's important to keep in mind that in the late teen years, lots of kids are stressed out; they're anxious; they're not sleeping well. And many of the people that we see tend to be pretty high achievers and

"In terms of getting the diagnosis right, it's important to remember that genuine ADHD is a disabling condition, and logically, you'd think if somebody has gone through their whole life up to age 30 or 40 really suffering from ADHD, there should be some sort of paper trail."

Alyson Harrison, PhD

Expert Interview
Continued from page 4

are worried about getting good grades. And their problems begin around late high school when they realize they need to have good enough grades to get into a competitive post-secondary program. So, again, it's important to investigate that a little more first before we jump on the ADHD bandwagon.

TCPR: Is it possible you're interpreting the criteria too stringently by requiring such serious symptoms of disability as getting fired and getting into accidents? If we required such symptoms, wouldn't we end up turning away people with milder versions of ADHD who might benefit from medication?

Dr. Harrison: That's possible, but we have a responsibility to minimize harm, and if there are other more salient and likely explanations for the problems, then I think it's irresponsible to write a prescription. After all, we know lots of people would benefit from stimulants regardless of whether they have ADHD.

TCPR: Can you give us an example?

Dr. Harrison: Sure. We had a PhD student present to our clinic who had won all sorts of awards as an undergrad and won a full scholarship for graduate study. He came to our clinic saying he thought he had ADHD. He knew that we were only a screening clinic, and that we wouldn't be prescribing the medication even if we diagnosed him with that problem, so we asked him, "Why don't you just go to your family physician?" He rolled his eyes and said, "Okay, I'll level with you. I can't go to my family doctor." And we said, "Why not?" He responded, "Because he's known me all my life." We said, "Well, that's perfect." He argued, "No, it's not. He knows I don't have ADHD." Then he said, "Look, I'm tired of paying \$20 a pill to get Adderall in my dorm, but if you guys diagnose me, then the university health plan will pay for it. Everyone else is staying up late and writing papers, and I need to be awake and alert to stay competitive." He knew all the right things to say about the symptoms, but it was pretty hard for him to say objectively anything to help us see where those symptoms had impaired his life.

TCPR: And of course, the problem is that we have no biomarker for ADHD.

Dr. Harrison: Correct. DSM tries to draw this arbitrary line in the sand to say, "Once you've passed this line, you probably have it."

TCPR: In clinical practice, the situation is not as clear-cut as with grad students. We might see 30- or 40-year-old adults who tell us that they are having concentration problems—their spouse is complaining about them not listening to a conversation, or their attention is wandering at work. They ask for a stimulant, and while you may not be certain they have ADHD, you give them a trial prescription. They come back in a month and they say it's working, and they get another refill, and then another; then suddenly it's five years later and they feel they have a God-given right to their stimulant. So there are two parts to the problem: First, we are not doing a good enough job establishing the diagnosis in the first place, and second, we are not adequately assessing whether the meds are actually doing anything.

Dr. Harrison: In terms of getting the diagnosis right, it's important to remember that genuine ADHD is a disabling condition, and logically, you'd think if somebody has gone through their whole life up to age 30 or 40 really suffering from ADHD, there should be some sort of paper trail. There should be some sort of history to show how this condition has disabled them as opposed to a verbal report that they've just always had some problems with paying attention or focusing. As an analogy, if you've been quadriplegic all your life, there should be some evidence to say that you can't get around or move very well without someone else helping you. So in our interviews we will go into some depth, and we actually get them to bring in their old report cards. It's pretty hard to say that you've been impaired by your symptoms if you've always gotten A's in school and you were on the dean's list and you were the valedictorian. Maybe they had some symptoms, but without impairment, it's not a disorder.

TCPR: That makes sense. And after a prescription, we should spend more time nailing down some target symptoms or behaviors that we can ask about every appointment, so we can figure out whether the medication is actually doing something for the patient.

Continued on page 8

Medications Most Commonly Used for Adult ADHD		
Brand Name (Generic)	Dosing	Notes
Stimulants		
Adderall IR (mixed amphetamine salts)	Week 1: 0.25 mg/kg Week 2 and after: 0.5 mg/kg	Lasts about 6 hours; dosed twice daily
Adderall XR (mixed amphetamine salts XR)	Use same dose as IR when switching to XR	Theoretically can be dosed once a day, but most need it twice daily
Vyvanse (lisdexamfetamine)	30 mg QAM–70 mg QAM	Once-a-day dosing feasible; lower abuse liability, since inactive if snorted or injected
Non-stimulants		
Wellbutrin XL (bupropion XL)	Week 1: 150 mg/day; week 2: 300 mg/day; week 3: 450 mg/day	Also an effective antidepressant and a smoking cessation aid—so a "three-fer" is a possibility
Strattera (atomoxetine)	Week 1: 40 mg/day; week 2: 80 mg/day; week 3: 100 mg/day	More expensive than bupropion

Research Updates IN PSYCHIATRY

PTSD/SUD

N-acetylcysteine Shows Promise in Treatment of Co-Occurring PTSD and SUD

REVIEW OF: Back SE et al. A double-blind, randomized, controlled pilot trial of N-acetylcysteine in veterans with post traumatic stress disorder and substance use disorder. *J Clin Psychiatry*, dx.doi.org/10.4088/JCP.15m10239.

STUDY TYPE: Double-blind, randomized, controlled trial

Post-traumatic stress disorder (PTSD) is the most common psychiatric disorder in veterans who seek treatment at the VA, and substance use disorder (SUD) is a common comorbid condition. While SSRIs can be effective for PTSD symptoms, they don't treat SUD well.

N-acetylcysteine (NAC) is an antioxidant approved for the treatment of acetaminophen overdose and pulmonary disease, and it has been used in psychiatry for patients with trichotillomania and gambling, among other conditions. Neurochemically, NAC normalizes synaptic glutamate transmission,

and hypothetically such transmission is disordered in both PTSD and SUD. Therefore, researchers decided to try the medication in a group of veterans with PTSD and SUD.

Thirty-five veterans aged 18–65 from the Ralph H. Johnson VA Medical Center were enrolled; they all met DSM-IV criteria for SUD and PTSD. After at least one week of sobriety, they were randomly assigned to double-blind treatment with either NAC or placebo. The active treatment group received 2,400 mg of NAC daily for 8 weeks. Both groups attended a cognitive behavioral therapy–based outpatient program that met 5 days per week during the study. All patients were assessed with standard research scales for PTSD symptoms, such as the Clinician-Administered PTSD scale (CAPS), and the PTSD Checklist Military (PCL-M); they were also assessed for depression and substance craving. The study was funded by several government agencies, including the Department of Veterans Affairs and the National Institute for Drug Addiction.

RESULTS

Over the course of 8 weeks, patients in the NAC group (N = 13 after dropouts) improved significantly on all measures ($p < 0.05$), whereas those assigned to

placebo (N = 14) improved on only one measure: the CAPS re-experiencing subscale. By week 8, the NAC group had reductions of 46% in the CAPS and 32% on the PCL-M, while the placebo group had reductions of 25% and 3% respectively. There was an 81% reduction in craving in the NAC group compared to 32% in the placebo group. Adverse effects were mild, with the most common being dry mouth and heartburn.

TCPR'S TAKE

The pilot study has some limitations: Its sample size was small, and it lacked any measure of whether quality of life was improved by symptom reduction. Nonetheless, the symptom improvement for both PTSD and substance craving in the NAC group were impressive.

PRACTICE IMPLICATIONS

Given the lack of effective treatments for co-occurring PTSD and SUD, it's reasonable to try NAC at 2,400 mg/day for such patients. The side effects are minimal, and the improvements in symptoms may be significant.

Colleen Ryan, MD. Dr. Ryan has disclosed that she has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

How to Treat Adult ADHD

Continued from page 3

half have said, "I want to go back on my Adderall." I speculate this has to do with variability in how efficiently the drug is activated.

There is a subset of patients for whom Vyvanse is clearly the best choice: those who have had bariatric surgery. Whereas most stimulants require an intact stomach for absorption, Vyvanse is absorbed in the small bowel, which is preserved after such operations.

If I have a patient who has responded to a methylphenidate product in the past or who requests it for some other reason, I will generally start with the immediate-release version (brand name Ritalin) and may switch to other versions, such as Focalin IR/XR or

Concerta, as dictated by response and patient preference.

Stimulant side effects

In terms of side effects, I warn patients that appetite suppression is common in the beginning and that they may lose 8–10 pounds over the first several months, but that this weight loss should not persist. If appetite loss is a problem, I recommend eating before taking the medication. Insomnia can occur, but it is usually not an issue, because paradoxically sleep improves—either because of decreased bedtime ruminations, or because of symptoms wearing off due to decreased blood levels of a stimulant ("crashing"). For patients

with significant insomnia, I recommend only morning dosing. If crashing becomes a problem, splitting the medication into three daily doses sometimes helps.

Irritability is a potential side effect of stimulants, but it is less common than many assume. In fact, I often see *decreased* irritability, since many people say the medications produce a calming effect. Irritability and increased anger are likely more common among amphetamine abusers who do not have ADHD.

One of the most common side effects of stimulants is dry mouth. Patients usually do well with oral rinses (brands include Biotene and SalivaMAX), but if they are having gingival recession,

Continued on page 7

CME Post-Test

To earn CME or CE credit, you must read the articles and log on to www.TheCarlatReport.com to take the post-test. You must answer at least four questions correctly to earn credit. You will be given two attempts to pass the test. Tests must be taken by January 31, 2018. As a subscriber to *TCPR*, you already have a username and password to log onto www.TheCarlatReport.com. To obtain your username and password, please email info@thecarlatreport.com or call 978-499-0583.

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For those seeking ABPN Self-Assessment (MOC) credit, a pre- and post-test must be taken online at <http://thecarlatcmeinstitute.com/self-assessment/>

Below are the questions for this month's CME/CE post-test. This page is intended as a study guide. Please complete the test online at www.TheCarlatReport.com. Note: Learning Objectives are listed on page 1.

1. What percentage of the adult population has been diagnosed with ADHD? (LO #1)
 a. Under 1% b. 2%–3% c. 4%–5% d. Approximately 7%
2. In a recent study of university students, those who self-reported higher levels of depression, anxiety, and stress were no more likely to experience ADHD symptoms than other students. (LO #2)
 a. True b. False
3. According to the DSM-5 criteria for ADHD, an adult patient would have had to display a sufficient number of symptoms during which age range? (LO #2)
 a. Under 8 years of age
 b. Under 12 years of age
 c. Under 18 years of age
 d. Under 21 years of age
4. What percentage of patients diagnosed with adult ADHD receive treatment? (LO #1)
 a. Approximately 10%
 b. Approximately 15%
 c. Approximately 25%
 d. Approximately 30%
5. In a recent study on veterans with PTSD and SUD, what was the reduction in substance craving for patients receiving 2,400 mg of N-acetylcysteine daily for 8 weeks? (LO #3)
 a. Approximately 20%
 b. Approximately 40%
 c. Approximately 60%
 d. Approximately 80%

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How to Treat Adult ADHD

Continued from page 6

I will prescribe pilocarpine, a medication approved for xerostomia.

Non-stimulant treatments

I will prescribe a non-stimulant for patients who have failed a stimulant in the past, have responded well to a non-stimulant in the past, or have recently gone through substance abuse treatment.

My first choice is Wellbutrin (bupropion), which is equally effective as and cheaper than Strattera (atomoxetine), and has the added benefit of being an approved antidepressant. Bupropion can be used for ADHD, but many doctors do

not dose it high enough. In the clinical trials for ADHD, the mean daily doses were 362 mg of bupropion SR and 393 mg of bupropion XL. I typically use the XL formulation because it is difficult for patients to remember to take the second dose of the SR. I will start at 150 mg daily for one week, then 300 mg for another week, then 450 mg. I warn patients of potential side effects like sleeplessness, decreased appetite, and jitteriness. It may take 5–6 weeks to see the full benefit.

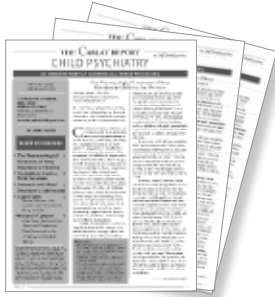
My second choice is atomoxetine (Strattera). I start with 40 mg daily for a week, then go up to 80 mg, and if

needed increase to 100 mg. The side effects are similar to antidepressants, such as insomnia, sexual dysfunction, and nausea. I will wait about 6–8 weeks before declaring a non-response.

Other potential non-stimulants are alpha 2 agonists, which I have not found effective for adults, and modafinil (Provigil), which was found effective in clinical trials for ADHD in children but not in adults.

TCPR VERDICT: Adult and pediatric ADHD differ somewhat—both in evaluation strategies and in treatment.

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This Month's Focus:
Adult ADHD

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Expert Interview
Continued from page 5

Dr. Harrison: I had a student whose parents were very reluctant to have him on medication, but his family physician had put him on it. Even the student wasn't 100% convinced he had ADHD. And I said, "Let's just do an experiment. Let's look at some target behaviors and create a questionnaire tailored to you. Give the questionnaire to people who know you and see how they rate your symptoms. Then go off your medication for a couple of weeks, without telling them—then have them rate you again." What was interesting was that there was a halo effect: People assumed this guy was on medication, and they kept saying that he was great 100% of the time even when he was off his meds. Both he and his parents concluded that it really wasn't clear that he had ADHD, or that he was responding to medication.

TCPR: That's very interesting. Thank you for your time, Dr. Harrison.



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