Adult ADHD in Primary Care: Addressing the Unmet Need
Faculty

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Disclosures

- Dr. Greg Mattingly, MD serves as a speaker for Allergan, Lundbeck, Merck, Otsuka, Shire, Sunovion, Takeda and Vanda. Dr. Mattingly also serves as a consultant for Alkermes, Allergan, Forum, Lundbeck, Merck, Otsuka, Perdue, Rhodes, Shire, Sunovion, Takeda and Vanda. Additionally, he serves as a researcher for Akili, Alcobra, Alkermes, Allergan, Boehringer, Forum, Janssen, Medgenics, NLS-1 Pharma AG, Reckitt Benckiser, Shire, Sunovion, Supernus and Takeda.
Learning Objectives

1. Describe ADHD symptom profiles and common presentations in a primary care setting

2. Identify risks for coexisting disorders in adult patients with ADHD with emphasis on anxiety disorders, mood disorders, and substance use/abuse disorders

3. Implement appropriate pharmacologic treatment for adults diagnosed with ADHD designed to improve compliance, minimize side effects and maximize outcomes in a busy primary care setting

4. Use adult ADHD assessment and treatment tools for assessment, treatment and follow-up monitoring
PRE-TEST QUESTIONS
A 37-year-old woman presents complaining of distractibility and inability to focus. She has a new job and often can’t focus on or complete assigned tasks. She asks if there is something that can help improve her concentration. She has a 14-year-old daughter who was recently diagnosed with ADHD.

Which of the following would be appropriate at this time?

1. Refer to specialist for evaluation
2. Administer ASRS or ADHD-RS scales
3. Initiate empiric therapy with short-acting stimulant
4. Diagnose ADHD based on presentation and family history
Based on meta-analysis of treatment effect sizes, which of the following agents is generally reserved for second-line use in adults with ADHD?

1. Atomoxetine
2. Lisdexamfetamine
3. Methylphenidate XR
4. Mixed amphetamine salts XR
Which of the following is the most common psychiatric comorbidity in adults with ADHD?

1. Major Depression
2. Bipolar Disorder
3. Anxiety Disorder
4. Dysthymia Disorder
According to the DSM-5, all of the following are required criteria for a diagnosis of adult ADHD, EXCEPT:

1. Symptoms present before age 8
2. Symptoms cause functional impairments
3. At least 5 symptoms from Inattention and/or Hyperactive/Impulsive domains
4. Functional impairments in at least two domains (school, work, home, social)
Pre-test ARS Question 5

How often do you consider a diagnosis of ADHD in adult patients presenting with symptoms of depression, anxiety or substance abuse?

1. Never
2. Rarely
3. Sometimes
4. Very often
5. Always
Please rate your confidence in your ability to recognize and diagnose ADHD in adult patients:

1. Not at all confident
2. Slightly confident
3. Moderately confident
4. Pretty much confident
5. Very confident
Prevalence
Patient Case: Emily

- 38-year-old married woman with two children
  - 10-year-old boy, 7-year-old girl
- Presents complaining of sleep problems
- Fidgets and appears distracted during visit
- Reports feeling stressed and overwhelmed

Says: “I don’t know what it is, I’m just struggling right now. Would an antidepressant help?”
Emily (cont’d)

Medical History

- Prior episode of major depression, 10 years ago; treated with SSRI
- Otherwise in good health
- PE: unremarkable
- Meds: oral contraceptives

Other History

- Struggled with school as child, did not go to college
- Former smoker
- Drinks socially
- Son has history of behavioral problems at school for several years
ADHD Is Prevalent in All Age Groups

Historically, ADHD has been thought of as a childhood disorder, but it has been demonstrated to persist into adulthood\(^1\)

- 8% of children have ADHD\(^2\)
- 6% of adolescents have ADHD\(^3\)
- 4.4% of adults have ADHD\(^4\)

Up to 65% of children with ADHD continue to experience the disorder into adulthood\(^1\)

ADHD IS A Highly Genetic Neurologic Condition
Heritability of Psychiatric Illnesses

Heritability of Psychiatric Illnesses

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Heritability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td>75%</td>
</tr>
<tr>
<td>Bipolar</td>
<td>77%</td>
</tr>
<tr>
<td>Depression</td>
<td>42%</td>
</tr>
</tbody>
</table>

ADHD Patients Have Greater Rates of Functional Impairment...

Functional Impairments in ADHD vs Normal Control

- Repeat a grade
- Failure to graduate HS
- Involved in teen pregnancy
- STD
- Substance abuse
- Illness and accidents
- At-fault car accident
- Arrested
- Incarcerated
- Fired from job

\* \( P \leq 0.01 \);
\dagger \( P \leq 0.001 \);
\ddagger \( P \leq 0.001 \).

Diagnostic Criteria
ADHD Is A Neurologic Disorder That Affects Many Areas of Life

- Social
- Home
- Medical Considerations
- Psychiatric Comorbidities
- Work
- School

- Inattention
- Hyperactivity
- Impulsivity
Diagnostic Criteria for Adult ADHD DSM - 5

A. Symptomatic criteria – At least 5 in at least one symptom domain (Inattentive or Hyperactive/Impulsive)

B. Age of onset: symptoms present < age 12

C. Impairments: symptoms cause functional impairment at school or work or social or personal or home life

D. Pervasiveness: impairments from symptoms in at least 2 domains

E. Differential diagnosis: symptoms not a result of other disorders

<table>
<thead>
<tr>
<th>Inattentive</th>
<th>Hyperactive/Impulsive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Easily distracted</td>
<td>1. Fidgets, taps, squirms</td>
</tr>
<tr>
<td>2. Does nor follow through</td>
<td>2. Leaves seat</td>
</tr>
<tr>
<td>4. Difficulty sustaining attention</td>
<td>4. Feels restless</td>
</tr>
<tr>
<td>5. Poor attention to details or</td>
<td>5. Can’t be quiet in leisure activities</td>
</tr>
<tr>
<td>makes careless mistakes</td>
<td></td>
</tr>
<tr>
<td>6. Avoids, dislikes or is reluctant</td>
<td>6. Talks excessively</td>
</tr>
<tr>
<td>to engage in tasks that require</td>
<td></td>
</tr>
<tr>
<td>sustained mental effort</td>
<td></td>
</tr>
<tr>
<td>7. Difficulty organizing</td>
<td>7. Blurs out</td>
</tr>
<tr>
<td>8. Loses things necessary for</td>
<td>8. Interrupts/Intrudes</td>
</tr>
<tr>
<td>tasks or activities</td>
<td></td>
</tr>
</tbody>
</table>
IQ and ADHD

- IQ can compensate for the impairments of ADHD
- Can forestall diagnosis of ADHD

National Comorbidity Survey Replication: Mood Disorders in Adult ADHD

- Bipolar disorder: 19.4%
- Major depression: 18.6%
- Dysthymia: 12.8%
- Any mood disorder: 38.3%

National Comorbidity Survey Replication: Anxiety Disorders in Adult ADHD

Any anxiety disorder 47%

- Generalized anxiety disorder 8%
- Panic disorder 8.9%
- Obsessive-compulsive disorder 2.7%
- PTSD 11.9%
- Social phobia 29.3%
- Agoraphobia 4%

Screening
An Algorithm for Clinical Assessment and Diagnosis of ADHD in Adults – Culpepper and Mattingly, 2008*

**Clinical Assessment**

**Thorough History**

<table>
<thead>
<tr>
<th>Medical/Psychiatric History</th>
<th>Family History</th>
<th>Developmental History</th>
<th>Educational/Vocational History</th>
<th>Occupational History</th>
<th>Social Functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have you been diagnosed with a medical condition?</td>
<td>• Have your parents, siblings, or other family members shown symptoms of inattention and/or hyperactivity?</td>
<td>• How did you do in school as a child?</td>
<td>• Ask the patient specific questions about their inattention, hyperactivity, and impulsivity in the three domains listed</td>
<td>• Did you have to repeat a grade?</td>
<td></td>
</tr>
<tr>
<td>• Have you been diagnosed with a psychiatric condition?</td>
<td>• Have your parents or siblings been diagnosed with ADHD/ADD?</td>
<td>• Could you provide your school records?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Do you currently take any medication?</td>
<td>• Do you have a child who has been diagnosed with ADHD/ADD?</td>
<td>• Do you recall any comments from teachers regarding your behavior or performance in school?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This algorithm was adapted from an article by Culpepper and Mattingly in Post Graduate Medicine Culpepper L, Mattingly G. *Postgrad Med.* 2008;120:16-26.
Additional Assessments

Interview family members

Explore past management strategies used by the family or patient

Screen for ADHD Using rating scales

Make the diagnosis

Refer to Specialist
- If not sure of the diagnosis
- If not sure of treatment options
- If the patient has significant psychiatric comorbidity
- If the symptoms do not respond to medications proven effective in treating ADHD
- If there is a joint need of the patient and physician for help in areas where the psychiatrist has special expertise

***Treat the patient

*This algorithm was adapted from an article by Culpepper and Mattingly. No specific clinical assessment/diagnosis algorithm is widely endorsed for ADHD in adults.

Which is the ‘BEST’ scale to detect inadequate response to an ADHD medication?

ADHD-RS ??
Conner’s ??
Vanderbilt ??
Others ??
ASRS Screener

- A 6-question subset of the 18-item scale that is used to screen for ADHD symptoms but is not diagnostic in and of itself\(^1,2\)

- These 6 items were selected based on stepwise logistic regression analysis of the diagnostic interviews of patients with and without ADHD in the National Comorbidity Survey Replication sample\(^2\)

- Scoring based on how often a symptom occurred over the previous 6 months\(^2\)

- Items significant at threshold frequency of “sometimes” or “often”\(^2\)

- 4 inattentive items\(^2\)

- 2 hyperactive-impulsive items\(^2\)

- Positive predictive value in 57% to 95% of cases\(^2\)

\(^1\)ASRS-V1.1 Screener COPYRIGHT © 2003 World Health Organization (WHO).

ADHD-RS with Adult Prompts

- An 18-item scale corresponding to the 18 items in the *DSM-IV-TR*® providing a rating of the severity of symptoms
- 9 items assessing inattentive symptoms
- 9 items assessing hyperactive-impulsive symptoms
- Scoring based on a 4-point Likert-type severity scale
  - 0 = none
  - 1 = mild
  - 2 = moderate
  - 3 = severe

Treatment
## FDA-Approved Medications for Adults with ADHD

<table>
<thead>
<tr>
<th>Medication</th>
<th>Child dosing</th>
<th>Adolescent dosing</th>
<th>Adult dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomoxetine</td>
<td>0.5 mg/kg (&lt; 70 kg) max 1.2 mg/kg (max 100 mg)</td>
<td>40 mg max 100 mg</td>
<td></td>
</tr>
<tr>
<td>Dexmethylphenidate XR</td>
<td>5 mg max 30 mg</td>
<td>10 mg max 40 mg</td>
<td></td>
</tr>
<tr>
<td>Lisdexamfetamine</td>
<td>10 -70 mg</td>
<td>20-70 mg</td>
<td>20-70 mg</td>
</tr>
<tr>
<td>Mixed amphetamine salts XR</td>
<td>10-30 mg</td>
<td>10-20 mg</td>
<td></td>
</tr>
<tr>
<td>OROS Methylphenidate HCL</td>
<td>18 -54 mg</td>
<td>18 -72 mg</td>
<td>18 -72 mg</td>
</tr>
</tbody>
</table>

## ADHD Treatment Effect Size*

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<th>Medication</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomoxetine</td>
<td>0.5 - 0.7</td>
</tr>
<tr>
<td>Methylphenidate XR or OROS</td>
<td>0.8 - 0.9</td>
</tr>
<tr>
<td>Mixed Amphetamine salts XR</td>
<td>0.9 - 1.0</td>
</tr>
<tr>
<td>Lisdexamfetamine</td>
<td>1.1 - 1.7</td>
</tr>
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*>= 0.5 – Moderate effect size
>= 0.8 – Large effect size

How long do they help?
Modified Workplace Setting
PERMP Scores: Lisdexamfetamine vs Placebo

LS Mean PERMP Total Score From 2 to 14 Hours Postdose
(Secondary End Point)

The most common treatment-emergent adverse events (≥5%) reported during the dose-optimization phase of this study were decreased appetite, dry mouth, headache, insomnia, upper respiratory tract infection, irritability, nausea, anxiety, feeling jittery, diarrhea and fatigue

n=104
*Average of all doses tested; †P=.0017 vs placebo; ‡P<.0001 vs placebo
Summary
ADHD Takeaways

1) ADHD is a highly genetic neurologic condition

2) 60 percent persist into adulthood

3) Untreated ADHD has significant morbidity and increased mortality

4) ADHD treatment has some of the highest effect sizes in all of medicine

5) Short acting stimulants do not have specific indications or safety data for adult ADHD

6) Long acting-once daily medications should be used to optimize symptom control
POST-TEST QUESTIONS
Post-test ARS Question 1

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