## Conflict of Interest Disclosure

<table>
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<tr>
<th>Category</th>
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<tr>
<td>Honorarium</td>
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<td>Stock or Patents</td>
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<td>Consulting</td>
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<td>Publishing/Royalties</td>
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<td>Organization</td>
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- Off-label use of medication will not be described
Learning Objectives

• Recognize how the manifestations of adult-onset ADHD differ from those of childhood-onset ADHD

• Plan a treatment for Adult ADHD that includes both pharmacological and psychological components

• Appreciate the prominent role of comorbidity with other psychiatric diagnoses
Outline

1) Divisive, Controversial Diagnosis

2) Manifestations of Adult ADHD

3) Diagnosis

4) Treatment
Divisive & Controversial Diagnosis

• One extreme
  • Biological brain condition
    • Genetic correlates
    • Neuroimaging findings
  • Environmental causes
  • Cognitive dysfunctions
  • Pharmacological treatments
Divisive & Controversial Diagnosis

- The other extreme
  - Psychological variant
    - Label for difficult children
    - Result of societal intolerance
    - One end of normal behavior spectrum
    - Something to grow out of
Middle Ground

• Many aberrant biological findings, but…
  • No set of consistent findings support unique dx
    • syndrome, not disorder
  • No single cause
    • Diverse biological, environmental, social contributors associated with inattention
  • (In)attention itself is inexact concept
    • Complex neuroanatomy
• ADHD patients suffer consequences
  • Work, home, relationships impacted
• Society, not science defines what is, isn’t disease
  • Impairment, disability occur against cultural expectations
Succinct Criteria

- Core sx of inattention, hyperactivity, distractibility, impulsivity
  - Neurodevelopmental basis
  - Two broad domains
    - Hyperactivity/impulsivity
    - Inattention
  - Impairments manifest in multiple public and personal life arenas
DSM-IV-TR vs. DSM-5

- Broad domains
  - Hyperactivity
  - Impulsivity
- Core symptoms
- Age of onset
- Adaptations for adults

- Unchanged, but subtypes replaced with presentation specifiers
- Unchanged, but examples of distinctive adult manifestations added acknowledging different settings in which adults operate
- Changed from before age 7 to before age 12
- Dx moved from child-based to neurodevelopmentally based chapter; adults need only five symptoms (vs six in children) to meet criteria
Adult Onset ADHD is Real

England/Wales Cohort
- N = 2,040
  - 359 (17.5%) ADHD
  - 247 (12.1%) childhood
  - 54 (21.9%) persistent
  - 166 (8.1%) adult
    - 112 (67.5%) new onset

Pelotas, Brazil Cohort
- N = 4,267
  - 809 (18.9%) ADHD
  - 393 (8.9%) childhood
  - 60 (12.2%) persistent
  - 492 (11.5%) adult
    - 416 (84.6%) new onset
    - 256 (52.0%) no comorbid psych dx
Comorbidity

• High rates with other psych d/o’s
  • ADHD may be overlooked because it overlaps with anxiety, depression, substance abuse, personality d/o’s
• Common comorbid psych sx
  • sleep-onset insomnia
  • emotional dysregulation
  • excessive mind-wandering
  • executive function difficulties
    • Asherson 2016

• 107 ADHD clinic pts
  • 8% no comorbidity; 10% one dx; 14% two; 15% three; 53% >four
  • 7% mild impairment; 53% moderate; 40% severe
    • Wilens 2009
Not your kid’s ADHD

• Context-sensitive sx emergence
  • Presence/absence
    • Structured environment
    • Coping strategies
    • Psychiatric comorbidity

• More heterogenous, subtle sx
  • Only 1/3rd adults meet full criteria
  • Functional impairment still common

• Higher-stakes consequences
  • Little people, little problems; big people, big problems
Distinguishing Adult ADHD from Mimics

• Confounders
  • Seemingly unrelated complaints mask ADHD, which is missed
  • No childhood ADHD by hx, no consideration given to Adult ADHD

• Characteristics
  • Early onset
  • Trait-like symptom persistence
    • NOT episodic/transient
    • NOT a change from baseline
  • How someone is!
Adult Hyperactivity/Impulsivity

• Manifestations
  • Restless, driven activity; inability to relax
  • Racing, scattered thoughts
  • Irritability; compromised emotional regulation
  • Impulsive Aggression; sexual impulsivity

• Consequences
  Sexual impulsivity
    Early/unplanned pregnancy; STDs
  Reckless driving
    Speeding tickets; MVAs
  Quitting jobs; dropping out of school
  Binge drinking; substance abuse
Adult Inattention

• Characteristics
  • Poor planning
  • Poor follow-through
  • Poor organization and time management

• Consequences: difficulties with
  • School attendance; assignment completion; paperwork
  • Future planning; keeping appointments
  • Household organization; prioritizing
  • Health maintenance
  • Relationship nurturance
  • Budgeting, spending, bill payment
Adult Diagnostic Assessment

- Elements
  - Clinical interview considering criteria
    - No objective text, therefore hx & exam critical
    - Screening tools for ADHD, comorbid diagnoses
  - Detailed developmental history
    - Early, longstanding problems with attention, self-control
    - Collateral informants, where possible
  - Educational history
    - Failure, underachievement
  - Current functioning
    - Work, relationships
  - r/o medical mimics
    - Thyroid d/o, seizure d/o, migraines, TBI, OSA, etc
    - Medication side effects, recreational substances
### ASRS 6 Questions

1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?

2. How often do you have difficulty getting things in order when you have to do a task that requires organization?

3. How often do you have problems remembering appointments or obligations?

4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?

5. How often do you fidget or squirm with your hands or your feet when you have to sit down for a long time?

6. How often do you feel overly active and compelled to do things, like you were driven by a motor?
Comorbidity Screening Tools

### PHQ-9

**PATIENT QUESTIONNAIRE**

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>MRN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physician</strong></td>
<td><strong>Date</strong></td>
</tr>
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</table>

Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
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</table>

1. Little interest or pleasure in doing things.

2. Feeling down, depressed, or hopeless.

3. Trouble falling/staying asleep, sleep too much.

4. Feeling tired or having little energy.

5. Poor appetite or overeating.

6. Feeling bad about yourself— or that you are a failure or have let yourself or your family down.

7. Trouble concentrating on things, such as reading the newspaper or watching television.

8. Moving or speaking so slowly that other people could have noticed. Or the opposite— being so fidgety or restless that you have been moving around a lot more than usual.

9. Thoughts that you would be better off dead or of hurting yourself in some way.

A. How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? Not difficult at all | Somewhat difficult | Very difficult | Extremely difficult

B. In the past two years have you felt depressed or sad most days, even if you felt okay sometimes? Yes | No

### GAD-7

**Alcohol Use Disorders Identification Test (AUDIT)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Possible Answers</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you have a drink containing alcohol? Never</td>
<td>Two or more times per week</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>2. How many drinks containing alcohol do you have on a typical day when you are drinking? Never</td>
<td>One or two times per week</td>
<td>Three or more times per week</td>
</tr>
<tr>
<td>3. How often do you have six or more drinks on one occasion? Never</td>
<td>Three or more times per month</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>4. How often do you drink the last few times you drank that you felt that you had a problem? Never</td>
<td>Two or more times per week</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>5. How often do you drink when you feel you have had a bad effect from drinking? Never</td>
<td>More than once a month</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>6. How often do you drink to feel better? Never</td>
<td>More than once a month</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>7. How often do you drink to feel better? Never</td>
<td>More than once a month</td>
<td>Four or more times per week</td>
</tr>
<tr>
<td>8. How often do you drink when you feel that you have a problem with drinking? Never</td>
<td>More than once a month</td>
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**Symptoms**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Severity Score</th>
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**GAD-7**

Over the last 2 weeks, how often have you been bothered by the following problems?

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1. Feeling nervous, anxious or on edge

2. Not being able to stop or control worrying

3. Worrying too much about different things

4. Trouble relaxing

5. Being so restless that it is hard to sit still

6. Becoming easily annoyed or irritable

7. Feeling afraid as if something awful might happen
Five-Item Discrimination

ADHD adults from community controls with 99% accuracy

1) Making impulsive decisions
2) Having trouble stopping activities, behaviors despite knowing one should
3) Being prone to daydream when one should be concentrating
4) Having difficulty preparing or planning ahead
5) Failing to persist at necessary but boring tasks

Antshel 2009
Suspect the Diagnosis When…

• Core symptoms present but not reaching full dx
  • Adults frequently don’t meet full ADHD criteria
  • Residual sx cause serious functional impairments
  • SUDs, mood/anxiety d/o combine with core sx
• Long h/o psychosocial dysfunction
  • Disrupted education, employment, relationships
• High intelligence/potential, low achievement
  • High-IQ may fxn only avg range because of ADHD toll
Challenges of Adult ADHD Treatment

- Chronic condition without cure
- Lifelong dependence on Schedule II drugs
- “normal” may seek stimulants as performance-enhancement drugs
- Psychiatric comorbidity the rule
Challenges of Adult ADHD Treatment

• Limited, problematic drug trials in adult pop’s
  • Greater variability in outcome; less dosing info

• Inattentive patients expected to attend to own management
  • Poor treatment adherence common
  • No parents/caretakers to monitor, manage

• Meds improve but rarely completely normalize social, behavioral function

• Comorbid dx – when present – also require tx
Pharmacological Therapy

• Goals
  • Identify impairments amenable to therapy
  • Treat concurrent psychiatric disorders
  • Reduce core ADHD symptoms

• ADHD Targets
  • Fronto-subcortical circuits rich in catecholamines (DA, NE)
  • Stimulants increase inhibition in circuit
Three FDA-Approved Drugs

• Two dopamine reuptake blockers
  • Methylphenidate
  • Amphetamine

• One noradrenergic agent
  • Atomexitine

• Not classified as a stimulant; not Schedule II
Tailoring Therapy

• Varied delivery mechanisms
  • Liquid, sprinkle, tablet, capsule, patch
  • Active isomer, prodrug

• Varied half-lives
  • Immediate Release: 3-4 hrs
  • Intermediate Release: 6-8 hrs
  • Extended Release: 8-12 hrs

• Tailor duration of efficacy to pt’s needs

• Mitigate abuse potential
Cardiovascular Risk

- Physiologic effects of stimulants
  - 3-5 mm rise systolic, diastolic BP
  - 5 bpm increase in HR
    - Weakly correlated to dose
    - Incidental for most patients
    - Could be relevant in pt with cardiac disease, HTN

- Prior to initiating stimulant
  - Query family hx early/sudden cardiac death; personal hx syncope, presyncope, palpitations
  - Baseline ECG to r/o hypertrophic cardiomyopathy, long-QT syndrome
Stimulant Side Effects

Generally mild to moderate
Increased NE, DA tone can cause

- Dry mouth
- Insomnia
- Edginess
- Decreased appetite
- Weight loss
- Dysphoria
- Tics

- Headaches
- Nausea
- Constipation
- Decreased libido
- Dizziness
- Sweating
Additional Pharmacologic Options

• Lisdexamfetamine
  • Pro-drug: gut metabolism releases active form
  • Reduced abuse risk

• Tricyclic Antidepressants
  • Noradrenergic
  • Potent antidepressants

• Bupropion
  • Dopaminergic, Noradrenergic
  • Potent antidepressant, adjunct for quitting smoking

• Modafinil
  • Non-specific effects on CNS arousal
  • No better than placebo

• Guanfacine, Clonidine
  • Alpha-2 receptor blockers increase NE tone
Integrated Treatment Plan

• Elements include
  • Psychoeducation
    • Identify strengths, weaknesses
    • Focus on self-esteem
  • Med trial with titration to ideal dose
  • Assessment of residual symptoms
  • Behavior management/modification
    • Time management therapy
    • Cognitive Behavioral therapy
  • Family involvement
Compensate!

- Get practical! Build skills and compensatory strategies
  - Lists, notepads for ideas
  - Appointment books, calendars
  - Dictaphone/PDA for recording ideas
  - Bulletin boards for key messages
  - Reminders from family members
  - Help with finances
  - Short-term goals
  - Daily routines
  - Sense of humor
Conclusions

- Adult ADHD
  - (at least) two distinct syndromes
    - childhood onset
    - adult onset
  - Heterogeneous, variable syndrome
  - Frontal lobe focus, but diffuse brain pathology
  - Distinct manifestations adult versus children
  - Clinical diagnosis without objective tests
  - Stimulants most effective med, not “cure-all”
  - Psychotherapy based in compensatory skill-building
Learning Objectives

• Recognize how the manifestations of adult-onset ADHD differ from those of childhood-onset ADHD

• Plan a treatment for Adult ADHD that includes both pharmacological and psychological components

• Appreciate the prominent role of comorbidity with other psychiatric diagnoses
Questions & Discussion
Selected Bibliography


• Klein RG, Mannuzza S, Ramos Olazagasti MA, Roizen E, Hutchison JA, Lashua EC, Castellanos FX. Clinical and functional outcome of childhood attention-deficit/hyperactivity disorder 33 years later. Arch Gen Psychiatry 2012; published online 10/15.


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