Diagnosing and Treating Adult ADHD

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• I do not have any disclosures
Objectives

• Epidemiology of ADHD in adulthood
• Clinical features
• Screening tools
• Treatment
• Treatment challenges

Epidemiology

• One of the most common disorders of childhood
• 30% persist into adulthood
• Prevalence of 4.4% among 18 to 44 year olds\(^1\)
• Genetics
  — First degree relatives of people with ADHD have a 3-5 fold increased risk

Neurobiology

• Dysfunction of brain circuits which use catecholamines
  – Hypoactive dopamine and norepinephrine in frontal subcortical circuits
  – Modulation of emotion and cognition through behavior and movement
  – Vigilance, perceptual-motor speed, working memory, verbal learning, processing speed, and response inhibition


Clinical Features

• ADHD
  – Predominantly inattentive presentation
  – Predominantly impulsive/hyperactive presentation
  – Combined presentation

• In adults
  – Symptoms of inattention are more common
  – Hyperactivity and impulsivity present differently
Clinical Features

• Adult ADHD evaluations are difficult!!
• There’s usually a lot of background noise
• Presentation in adults does not usually match up neatly with DSM criteria
  – Diagnostic criteria were developed for children
  – “you don’t grow out of ADHD, you just get better at coping with it”
• Secondary gain is a significant consideration

Clinical Features

• Case: John is a 21 year old college student referred for ADHD evaluation. He reports a history of ADHD diagnosed at age 8, never treated. He’s currently struggling to maintain a passing GPA in college, and describes procrastination, poor attention, and distractibility; he tends to “say what’s on (his) mind” quite a bit, and this gets him into trouble at work and at school.
Clinical Features

- Case: John has a history of depression and daily marijuana use. His medical history is notable for untreated sleep apnea (moderate, with an AHI of 18) and knee pain. Current medications include an MVI and prn Vicodin. He lives with his girlfriend of 6 months and her 4 children, ages 1 through 8, two of whom have special needs. Housing is unstable.

Clinical Features

- Assessment of specific symptoms, including onset, severity, frequency, situational specificity, and duration
- A functional assessment that covers school history, employment history, and performance
Clinical Features

• Real versus perceived impairment
  – Perceived: individual who is working full time, married with children, struggling to keep up with an executive MBA program
  – Real: individual repeatedly fired from jobs for failing to turn in time sheets, complete reports, or other job required duties

Clinical Features

• Past psychiatric and medical history
• Family history
• Social history

• Collateral history is incredibly helpful
Clinical Features

- A persistent pattern of inattention or hyperactivity/impulsivity that are present in more than one setting, and interferes with functioning

<table>
<thead>
<tr>
<th>Clinical Features</th>
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<tbody>
<tr>
<td>• ADHD is not an all or nothing condition.</td>
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<td>• People with ADHD can pay attention, exercise self-control, and complete tasks</td>
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<td>– faced with a deadline, has a highly rewarding and interesting task to complete, or is under close scrutiny their performance may be quite good</td>
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<tr>
<td>• The key in diagnosing ADHD is determining whether symptoms are typically present and are more pronounced when there is less external structure and demand</td>
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Clinical Features

• Key features
  – Inattention
  – Hyperactivity
  – Impulsivity
  – Executive dysfunction
  – Emotional dysregulation

CHILDRENS
Inattention
• Can’t pay close attention in class or complete schoolwork
• Forgetful: chores, errands, schoolwork
• Loses things: pencils, paper, homework

ADULTS
Inattention
• Has difficulty concentrating at work and finishing tasks
• Forgetful: returning calls, paying bills, keeping appointments
• Loses things: wallet, keys, cell phone
Clinical Features

- **Inattention**: trouble staying focused on tasks
  - Overlooks details or work is inaccurate
  - Trouble sustaining attention (lengthy readings, conversations, etc)
  - Starts task but gets easily side-tracked
  - Difficulty with organization
  - Avoids activities requiring sustained attention
  - Loses important things
  - Easily distracted
  - Forgetful in daily activities

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**Clinical Features**

**CHILDREN**

- **Hyperactivity**
  - Can’t sit still, always on the go
  - Climbs or runs at inappropriate times

- **Physical Impulsivity**
  - Does things that result in injuries

**ADULTS**

- **Restlessness**
  - Easily distracted, fidgety, impatient
  - Mood swings, relationship trouble

- **Verbal Impulsivity**
  - Says the “wrong thing” or speaks out of turn
  - Interrupts, completes other’s sentences
Clinical Features

• **Hyperactivity**
  – Restlessness, squirms, constant activity
  – Trouble remaining seated
  – Talks excessively

Clinical Features

• **Impulsivity:** speaking or acting without thinking
  – Difficulty waiting turn
  – Blurs out answers, completes sentences
  – Interrupts or intrudes on others
Clinical Features

• **Executive dysfunction:** the ability to conceptualize all facets of an activity and translate that into appropriate and effective behavior
  – Struggle with time management and have poorly organized lives
• **Emotional dysregulation:** mood lability, anger outbursts, low frustration tolerance

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Clinical Features

• Adults with untreated ADHD are
  – More than **twice** as likely to have been **arrested**
  – **Twice** as likely to have been **divorced**
  – More than **twice** as likely to have **dropped out of high school**
  – **Twice** as likely to have held **6 or more jobs** in the past 10 years

Clinical Features

AV 2. Driving Violations In Young Adults With and Without ADHD

Data from Barkley et al.

Diagnosis

- DSM-5
  - Symptom criteria have not changed
  - 5 or more of 9 inattentive symptoms, and/or 5 or more of 9 hyperactive/impulsive symptoms
    - Interfere with social, academic, or occupational function
  - Symptoms present prior to age 12 (rather than age 7, in DSM-IV) and in 2 or more settings
Diagnosis

• Screening instruments
  – Adult ADHD self-report scale
    • Current symptom check list based on frequency
    • 18 items pulled from DSM-IV
    • Shown to be effective in PC settings¹
  – Conners’ Adult ADHD rating scale
    • Long (66 questions rating frequency), costly, self-report and observer report → time consuming
    • Standardized scores across 9 domains

¹J Am Board Fam Med November-December 2012 vol. 25 no. 6

Diagnosis

• Wender Utah Rating Scale
  – Helps to establish the diagnosis in childhood
  – 61 questions, answered by the adult patient recalling their childhood behavior
  – Free and available online
Diagnosis

• In depth neuropsychological testing is not a universally accepted part of the ADHD evaluation

• Differences on measures of executive function, processing speed, memory, and sustained attention
  – But no consistent pattern has been identified and no particularly battery developed with adequate diagnostic sensitivity and specificity

Diagnosis

• Can these tests be feigned?
  – YES
  – Honest normals, fakers, ADHD
    • Fakers could not be discerned from ADHD
      – But, they did tend to have more exaggerated symptoms

• They’re just screening tools and don’t account for other medical conditions or comorbidities
Diagnosis

• Highly comorbid with other psychiatric disorders, which can make the diagnosis difficult
  – Mood disorders, OR 2.7 to 7.5
  – Anxiety disorders, OR 1.5 to 5.5
  – Substance use disorders, OR 1.5 to 7.9
• Confound the diagnosis because of symptom overlap and complicate treatment
  – The more ADHD symptoms the more comorbidities


Diagnosis

• Rule out psychiatric conditions which may be causing or contributing to ADHD symptoms
  – Depression: poor concentration, indecision, poor motivation
  – Anxiety: poor concentration, restlessness
  – Mania: distractibility, impulsivity, talkativeness
  – SUDs: alcohol, marijuana, stimulants
• Treat comorbid psychiatric conditions
### Diagnosis

- **What about marijuana?**
  - Undoubtedly causes symptoms similar to ADHD
  - Highly comorbid – the presence of one does not exclude the other
  - If the use of MJ is heavy and felt to be the primary cause of symptoms, focus should be on reduction of MJ use

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<td>• Some medical conditions can contribute to inattentive symptoms</td>
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<tr>
<td>- Chronic pain</td>
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<td>- Obstructive sleep apnea, and other sleep disorders</td>
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<td>- Thyroid disease</td>
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<td>- Traumatic brain injury</td>
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Diagnosis

• Workup
  – Basic labs: TSH, chemistry panel, CBC, UDS
  – Cardiac workup pre-stimulant prescription
    • Reports of sudden cardiac death
    • No increase risk found in large retrospective cohort study
    • Cardiac exam in all patients
    • EKG in patients older than 40, or with a history of cardiac disease, or family history of structural heart disease or sudden cardiac death
    • Monitor blood pressure and pulse


Treatment

• Case: John reports adherence to PAP therapy. Mood symptoms are controlled. Marijuana use is about once weekly to help with knee pain. This is confirmed with his girlfriend, who can corroborate the symptoms of inattention and poor performance at school. Further collateral history from his mother reveals a childhood history of ADHD. Cardiac exam and labs are benign, with the exception of UDS positive for THC. Weight is 75kg.
Treatment

- Goal is to reduce ADHD symptoms and improve function
- Pharmacotherapy
  - Stimulants
  - Non-stimulants
- Cognitive therapy and environmental changes

Treatment

- It can take time for circumstances to play out so that the patient sees the difference in how she responds to challenging situations
  - Symptoms: weeks
  - Function: months, sometimes years
Treatment

- Stimulants: methylphenidate and amphetamines
  - Work by increasing levels of dopamine and norepinephrine
  - Randomization trials have shown that stimulants outperform placebo (and non-stimulant medications), especially in short-term trials
  - Multiple formulations and delivery systems


Treatment

- Methylphenidate
  - Multiple brand names available Concerta, Focalin, Focalin XR, Metadate CD, Metadate ER, Methylin, Methylin ER, Quillivant XR, Ritalin, Ritalin LA, Ritalin-SR, Aptensio XR, Daytrana (patch)

  - Available in short and long-acting formulations
Treatment

• Amphetamines
  – Dextroamphetamine “Dexedrine”
  – Mixed amphetamine salts
    (amphetamine/dextroamphetamine) “Adderall”
  – Lisdexamfetamine “Vyvanse”

  – Available in short and long-acting formulations

Treatment

• Get familiar with one or two stimulants in each category (long and short acting)
  – No head-to-head trials comparing stimulants
• General rule of thumb:
  – 1mg/kg body weight of MPH
  – 0.5mg/kg body weight of amphetamine preparations
  – Average optimal daily dose for adults may be higher

Treatment

• Adverse effects:
  – Dry mouth
  – Insomnia
  – Irritability
  – Reduced appetite / weight loss
  – Headaches
  – Elevation in blood pressure and pulse
  – Psychosis
  – Pregnancy: class C

• Stimulant treatment agreement can be useful
  – Controlled substances (Schedule II)
  – Outline guidelines for use
    • Taken at dose and frequency prescribed
    • The script can come from only one healthcare provider
    • No early refills
    • Medication cannot be given away or sold
    • Random urine drug screens
Treatment

• Case: Treatment is initiated with methylphenidate 5mg q.am and q.noon. The dose is increased to 10mg q.am and q.noon after 1 week. He is then seen for follow up 2 weeks later.

Treatment

• Start with a fast acting formulation
  – More dosing flexibility
  – 3-5 hour duration
  – Onset of action usually within an hour
  – Bid dosing, separate doses by 4 hours

  – Can then convert to a long-acting formulation for once-a-day dosing if needed
Treatment

Case: At the follow up visit, BP and pulse are wnl. John reports some improvement in attention and concentration, with ability to study for longer periods of time, but feels there is room for improvement. He’s not having any adverse effects on MP. The dose is titrated to 15mg q.am and q.noon, with the option to go up to 20mg q.am and q.noon after one week.
Treatment

• Issue of up/down effect too significant: switch to once-daily long acting
  – Most have an initial peak within an hour, followed by a second peak effect 4-6 hours later
  – If effect doesn’t last long enough, add a low dose of a fast acting stimulant in the afternoon
• Forgetful of afternoon dose: try long acting
• Issue of poor tolerability: try another stimulant

Treatment

• Case: John returns to clinic and reports poor tolerability to the higher dose of methylphenidate because of headache and poor appetite. BP and pulse are wnl.
  – Option to switch to a different stimulant
    • Adderall (mixed amphetamine salts): reduce dose by 50%
    • Dextroamphetamine: 75% of Adderall dose (“mixed” amphetamines are 3:1 ratio of Dextro- vs Levo-enantiomer)
Treatment

• Issue of misuse, substance use, or diversion: try a non-stimulant
  – Atomoxetine (Strattera) – must be taken daily, takes several weeks for effect; cardiac workup; LFTs
  – Bupropion – must be taken daily, takes several weeks for effect
  – TCA or venlafaxine
  – Alpha-2 agonists
    • Clonidine
    • Guanfacine

Treatment

• Practical strategies and instruction to solve three of the most common ADHD problems: time management, organization, and planning
  – Maintain a daily schedule
    • Use a calendar, planner
  – To-do list
  – Limit distraction
  – Schedule attention-demanding tasks
  – Break down difficult tasks
  – Dedicated quiet study space
Summary

• A highly heritable condition
• Starts in childhood and persists into adulthood
• Diagnosis is made based on clinical presentation
• Treatment with stimulants, though second line medications are available

End

You have a "ferrari" brain - but with "chevy" brakes