Diagnosing and Treating Adult ADHD

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- I do not have any disclosures

Objectives

- Epidemiology / Neurobiology
- Clinical features
  - Diagnosis
  - 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]
  - 1.6: 1 male to female ratio
- Genetics
  - First degree relatives of people with ADHD have a 3-5 fold increased risk

1) Am J Psychiatry. 2006;163(4):716
2) Military Psychology, Aug 15 , 2016

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

J Clin Psychopharmacol. 2008 Jun;28(3 Suppl 2):S39-45

Clinical Features

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

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

Clinical Features

- ADHD
  - Predominantly inattentive presentation
  - Predominantly impulsive/hyperactive presentation
  - Combined presentation
- In adults
  - Symptoms of inattention are more common
  - Hyperactivity and impulsivity in adults present differently than in kids

Clinical Features

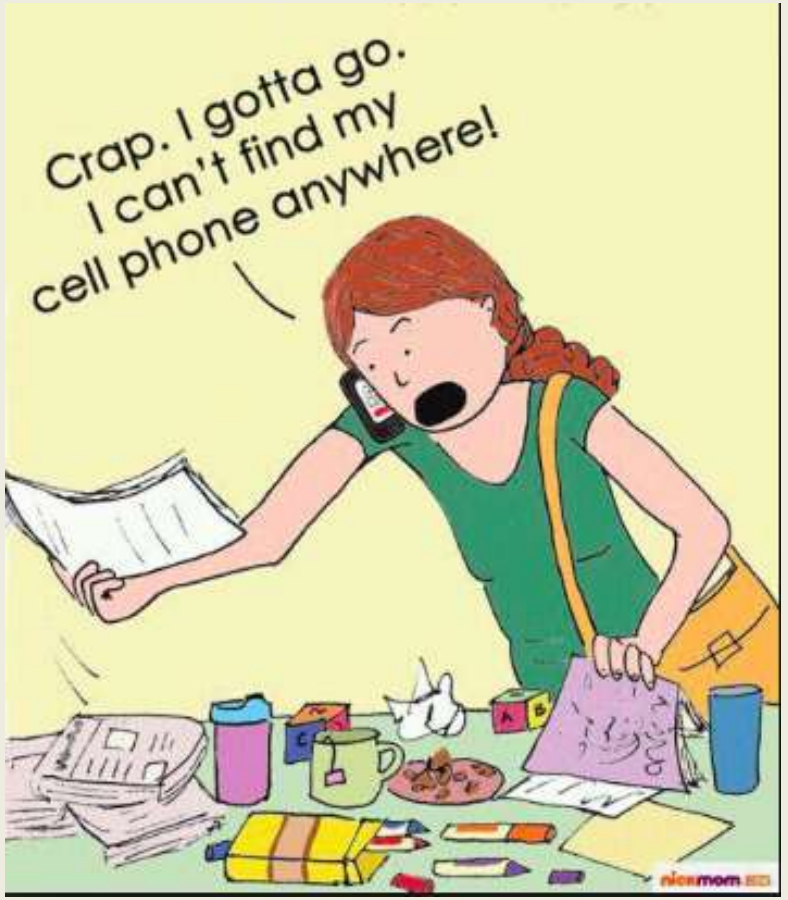
- Case: John is a 21-year old college student referred for ADHD evaluation. He reports a history of ADHD diagnosed at age 8, never treated. He's currently struggling to maintain a passing GPA in college, and describes procrastination, poor attention, and distractibility; he tends to "say what's on (his) 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

- Key features
  - Hyperactivity
  - Impulsivity
  - Inattention
  - Executive dysfunction
  - Emotional dysregulation



Clinical Features

- Hyperactivity
  - Fidgety
  - Trouble remaining seated
  - “On the go” / uncomfortable being still
  - Runs or climbs in inappropriate situations
  - Unable to engage in activities quietly
  - Talks excessively
- Impulsivity:
  - Difficulty waiting turn
  - Blurts out answers, completes sentences
  - Interrupts or intrudes on others

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

- Inattention: trouble staying focused on tasks
  - Overlooks details or work is inaccurate
  - Trouble sustaining attention (lengthy readings, conversations, etc)
  - Does not seem to listen when spoken to
  - Starts task but gets easily side-tracked
  - Difficulty with organization
  - Avoids activities requiring sustained attention
  - Loses important things
  - Easily distracted
  - Forgetful in daily activities

Clinical Features

CHILDREN

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

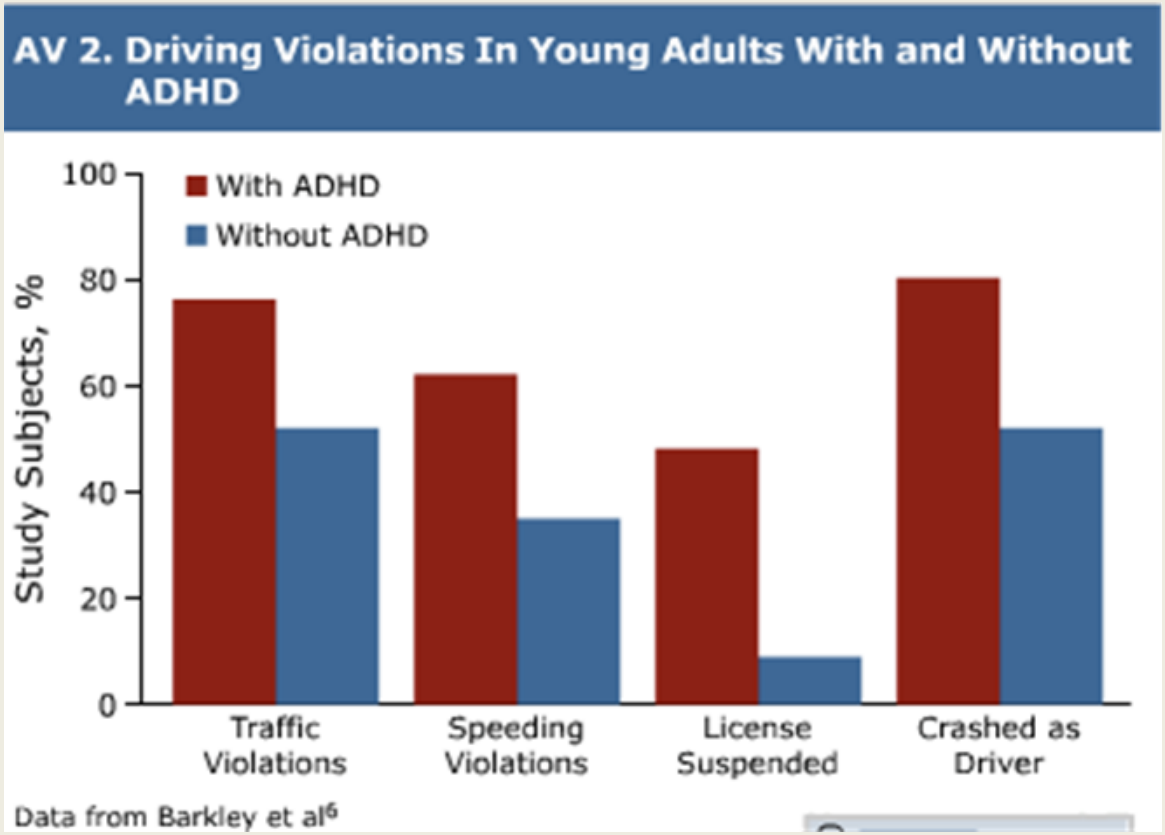
- Executive dysfunction: the ability to conceptualize all facets of an activity and translate that into appropriate and effective behavior
  - Struggle with time management and have poorly organized lives
- Emotional dysregulation: mood lability, anger outbursts, low frustration tolerance

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

"Survey of adults reveals life-long consequences of ADHD," news release, Porter Novelli, May 6, 2004.

Clinical Features



Diagnosis

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

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

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

Diagnosis

- Past psychiatric and medical history
- Family history
- Social history

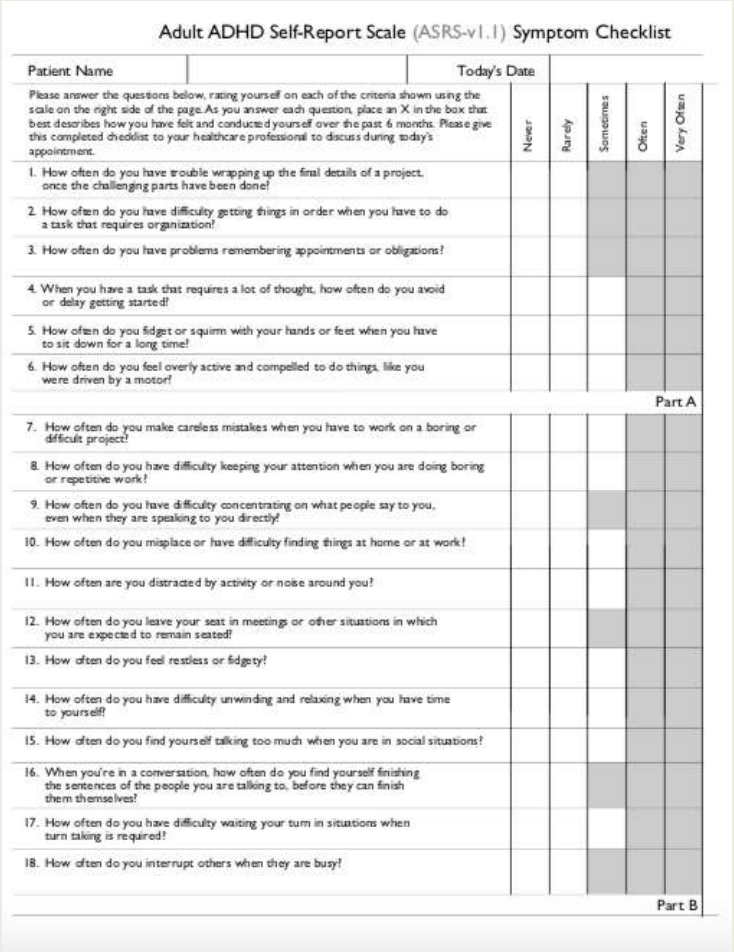
- Collateral history is incredibly helpful
  - Sometimes I ask for old medical records, and also report cards!

Diagnosis

- Screening instruments
  - Adult ADHD self-report scale
    - Current symptom check list based on frequency
      - 5 item Likert scale from “never” to “very often”
      - (symptom burden and symptom profile)
    - 18 items pulled from DSM-IV
    - Shown to be effective in PC settings[1]
    - Free and available online

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

Diagnosis



Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name | Today's Date

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.

	Never	Rarely	Sometimes	Often	Very Often
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 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?					

Part A

7. How often do you make careless mistakes when you have to work on a boring or difficult project?					
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?					
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?					
10. How often do you misplace or have difficulty finding things at home or at work?					
11. How often are you distracted by activity or noise around you?					
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?					
13. How often do you feel restless or fidgety?					
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?					
15. How often do you find yourself talking too much when you are in social situations?					
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves?					
17. How often do you have difficulty waiting your turn in situations when turn taking is required?					
18. How often do you interrupt others when they are busy?					

Part B

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

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

Diagnosis

- Can these tests be feigned?
  - YES
  - 70 college students
    - Randomized to honest normals and fakers
    - ADHD screen and brief psychological testing
    - Compared data to archived data of 72 persons with 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

Harrison et al. Archives of Clinical Neuropsychology (2007)

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

Am J Psychiatry. 2006;163(4):716.

Diagnosis

- Rule out psychiatric conditions which may be causing or contributing to ADHD symptoms
  - Depression: poor concentration, indecision, poor motivation
  - PTSD: poor concentration, irritability, reckless bx
  - Anxiety: poor concentration, restlessness
  - Mania: distractibility, impulsivity, talkativeness
  - SUDs: wide range of symptoms
- Treat comorbid psychiatric conditions

Diagnosis

- What about marijuana?
  - Undoubtedly causes symptoms similar to ADHD
    - Sustained attention
    - Learning
    - Psychomotor speed
  - 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

JAMA. 1996;275:521-527

Diagnosis

- Some medical conditions can contribute to inattentive symptoms
  - Chronic pain
  - Obstructive sleep apnea and other sleep disorders
  - Thyroid disease
  - Central nervous system disorders
    - Traumatic brain injury
    - Seizure disorders
  - Medications

Diagnosis

- Workup
  - Basic labs: TSH, metabolic panel, CBC, UDS
  - Cardiac workup pre-stimulant prescription
    - Monitor blood pressure and pulse
    - Cardiac history and 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
    - Reports of sudden cardiac death
      - No increase risk found in large retrospective cohort study

JAMA. 2011;306(24):2673.

Treatment

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 are the gold standard for therapy
  - High efficacy in numerous RCTs since the 1960s
  - Improvement in up to 75% of patients, with large effect size in clinical response

Pliszka 2007

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

N Engl J Med. 2013 Nov;369(20):1935-44.

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”

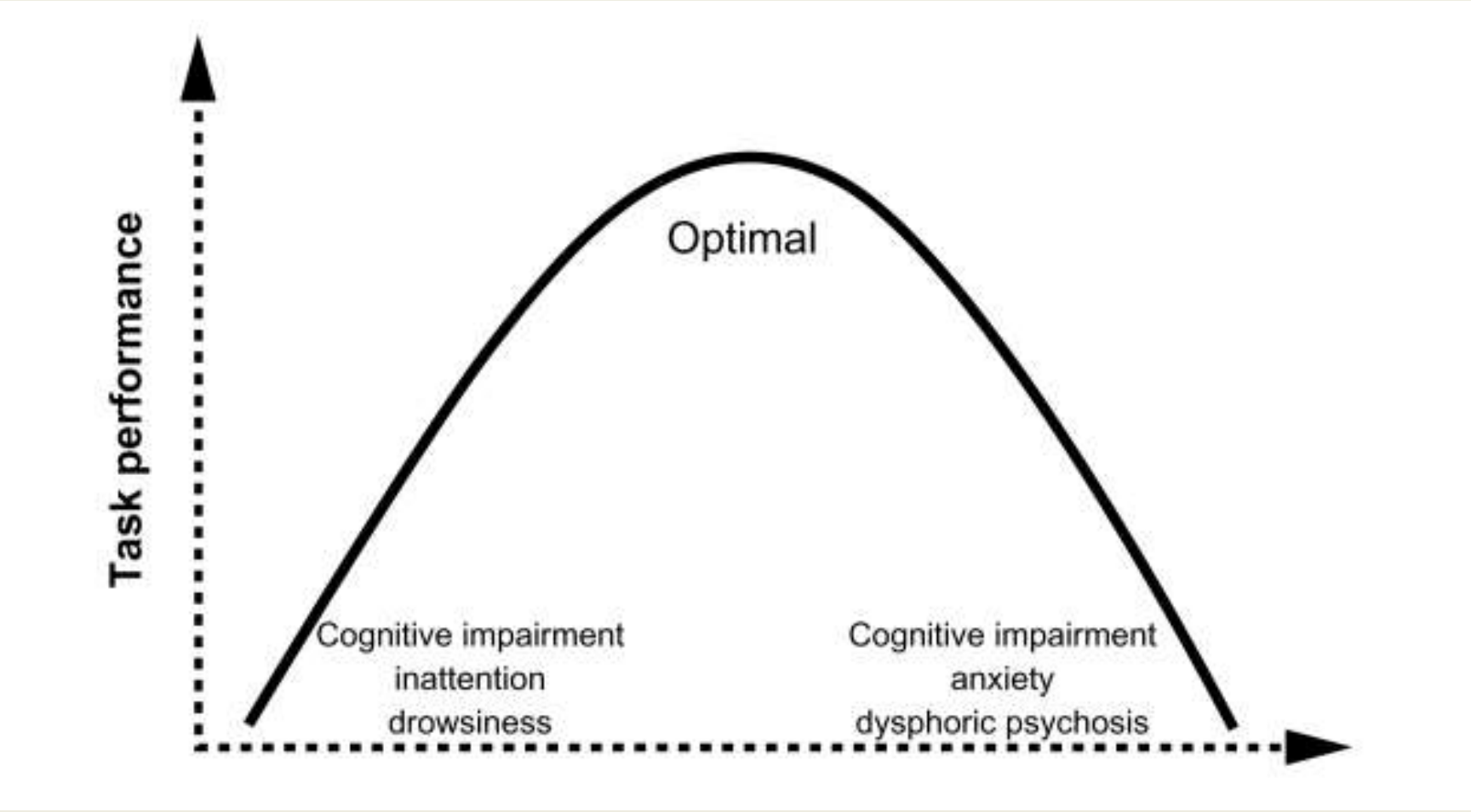
  - Available in short and long-acting formulations

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

Spencer T, Biederman J, Wilens T, et al. *Biol Psychiatry*. 2005;57:456-463
Spencer T, Biederman J, Wilens T, et al. *Arch Gen Psychiatry*. 2001;58:775-782.

Treatment



Blier P, Briley M - Neuropsychiatr Dis Treat (2011)

Treatment

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

Treatment

- Reasons to avoid stimulants
  - Uncontrolled hypertension
  - Serious arrhythmias
  - Symptomatic heart disease or congenital heart defect
  - Recent cardiovascular event
  - Pregnancy
  - Active drug use or unstable period of sobriety

Treatment

- 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
  - 3-6 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
    - Total duration of effect of up to 12 hours
  - If effect of long acting formulation doesn't last long enough, add a low dose of a fast acting stimulant in the afternoon

Treatment

- Forgetful of afternoon dose: try long acting
- Issue of lack of response: try another stimulant
  - 41% of people responded equally to MPH and amphetamine, and 44% responded preferentially to one or the other – response rate may be as high as 85% if both are tried
- Issue of poor tolerability: try another stimulant

Arnold, LE. **Methylphenidate vs. amphetamine: comparative review.** *J Atten Disord*. 2000;3:200–211

Treatment

- Case: John returns to clinic and reports positive symptom response but 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 (lower response rate)
  - Atomoxetine (Strattera) – must be taken daily, takes several weeks for effect; cardiac workup; LFTs
    - Can increase BP and P
  - Bupropion – must be taken daily, takes several weeks for effect
  - TCA or venlafaxine
  - Alpha-2 agonists
    - Clonidine
    - Guanfacine

Better for hyperactive symptoms
Consider if comorbid tics

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 in to adulthood
- Diagnosis is made based on clinical presentation
- Treatment with stimulants, though second line medications are available

End

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