ADHD: Assessment and Treatment across the Lifespan*

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Question 1

Which of the listed disorders is the most common co-morbidity with ADHD in children?

A - Learning disorders in Math
B - Learning disorders in expressive language
C - Oppositional defiant disorder
D - Separation anxiety disorder
E - Gender Identity Disorder of Childhood
Question 2

Which of the following adverse events have been reported with atomoxetine in adults?

- A-Sexual side effects
- B-Stevens-Johnson syndrome
- C-Bradycardia
- D-Hypotension
- E-None of the above
Question 3

- A diagnosis of ADHD in adults must include?
  - A-Retrospective history of ADHD symptoms before the age of 12 years
  - B- History of school failure
  - C- History of motor vehicle accidents
  - D- History of failed multiple marriages
  - E- History of substance abuse
Question 4

Which of the following statements about bupropion is true?

A - It should not be used in youth with a history of seizure disorder

B - It should not be used in youth with a history of eating disorder

C - It can be associated with serum sickness

D - It has off-label use for ADHD

E - All of the above
Question 5

Which 2 of the following instruments are useful in diagnosing adult ADHD?

- A-CAARS
- B-CARS
- C-BAARS
- D-WRAADS
- E-CARBS
Preview*

- History of ADHD
- Subtypes of ADHD and co-morbidities
- NE and DA pathways
- MTA study
- Medication Treatments for pediatric ADHD
- Adult ADHD
Teaching Points*

- ADHD is a *clinical* diagnosis in both youth and adults
- There are several subtypes that have different presentations
- The drugs of choice are psychostimulants and atomoxetine, but there are several other medications that can be effective
ADHD*: 

- Clinical characteristics:
  - some combination of severe inattention, hyperactivity, and impulsivity that begins in childhood, and often persists into adult yrs.
  - Must cause functional impairment across settings, and must be developmentally relevant
  - some symptoms should be present before age 7
Attention-Deficit Hyperactivity Disorder (ADHD)

- minimum brain dysfunction, hyperkinetic syndrome of childhood (1960s)
- 1980 DSM III: ADD(H)
- 1987 DSM IIIR: ADHD
- 1994 DSM IV: Subtypes
  - must meet 6 of 9 criteria in a particular category
    - Inattentive type (IA)
    - Hyperactive-Impulsive type (HI)
    - Combined type (CT)
ADHD in Childhood:

- Epidemiology
  - 3-7% of school-age children
  - boys 4-9x > girls
ADHD-Inattentive type

- Failure to pay close attention to details / frequent careless mistakes
- Difficulty sustaining attention in tasks or play
- Not listening when spoken to
- Not following through on instructions, and failure to finish tasks (schoolwork, chores). Not due to oppositionality or failure to understand
ADHD-Inattentive type

- Difficulty organizing tasks and activities
- Avoidance of tasks that require sustained mental effort
- Losing things necessary for tasks (toys, assignments, books)
- Easily distracted by external stimuli
- Often forgetful in daily activities
ADHD- Hyperactive/Impulsive type

- Fidgets with hands/ feet, or squirms in seat
- Leaves seat in classroom or other situations where sitting is expected
- Runs or climbs excessively in inappropriate situations
- Difficulty playing or engaging in leisure activities quietly
- Often “on the go” / “driven by a motor”
- Talks excessively
ADHD- Hyperactive/Impulsive type

- **Impulsivity**
  - Blurts out answers before questions have been completed
  - Difficulty waiting turn
  - Interrupts or intrudes on others (conversations, games)
Other criteria

- Some impairing symptoms were present before age 7
- Some impairment *across settings* (home, school)
- *Clinically significant* impairment in social, academic or work functioning
- Other conditions must be considered as source of symptoms
ADHD*

- Co-existing conditions must also be evaluated for
  - 30-50% of ADHD may be co-morbid with other dx
    - Oppositional Defiant Disorder (ODD)- Pervasive pattern of negativistic, defiant, disobedient, and hostile behaviors toward authority figures
    - Conduct Disorder (CD)- Repetitive pattern of violating the basic rights of others/ major age-appropriate social norms or rules are violated
    - Mood disorders (depression/bipolar disorder)- check family history!
      - Poor outcome in co-morbid teens (higher risk for suicide)
  - Anxiety Disorders- 25% or more
  - Learning Disorders- up to 60% in non-PCP settings
    - Especially Reading Disorder
Practice Guidelines*

- In children who have good primary care, other diagnostic tests are not *routinely* indicated
  - EEG’s indicated only if a history of seizure d/o or clinically significant lapses in consciousness exists
  - Continuous Performance Tests (CPT’s) are useful in research settings only
    - measures of vigilance / distractibility which have low odds ratios in differentiating children with and without ADHD
Practice Guidelines*

• Summary
  • Use explicit criteria for diagnosis
  • Obtain history from more than 1 setting
    • sx must be severe enough to cause functional impairment
  • Screen for co-existing conditions
• May need 2-3 visits for full work-up
  • parent and teacher questionnaires may be faxed for efficiency
    • Connor’s scales, other ADHD rating scales
Heterogenous condition, many causes*

- Final common pathway
  - factors include:
    - brain structure / functional abnormalities
    - family / genetic factors
    - prenatal / perinatal factors
      - Maternal smoking and alcohol use
    - neurotoxins
    - psychosocial stressors and combined factors
NORADRENERGIC PATHWAYS
Neuroimaging*

- MRI
  - Loss of the normal L > R asymmetry, smaller brain volumes of specific structures, esp. L caudate, smaller white matter vol of R frontal lobe
    - PFC, BG--both rich in DA receptors
    - 5-10% decrease in volume
    - Decreased volume of anterior-superior hemisphere
  - 5% decrease in R cerebellar volume, 4% reduction in intracranial volume; Unaffected siblings: up to 9% decrease in selected prefrontal and occipital areas
Legal Rights of the Student and Obligations of the School District* (adapted from Robin, 1998)

- **IDEA, Part B (1990)**
  - This law entitles student to an Individualized Education Plan (IEP) as part of a “Special Education” plan

- **Section 504 of the Rehabilitation Act of 1973**
  - This law entitles student to classroom modifications in the mainstream classroom (not “Special Ed”)

- **Americans with Disabilities Act (1990)**

- For excellent up-to-date discussions of Special Education laws, including the No Child Left Behind Act, IDEA, and Section 504, see
  - [www.schwablearning.org](http://www.schwablearning.org)
IDEA, Pt B*

- Requires public schools in the US to provide a **free and appropriate education** for all children with disabilities
  - Evaluation must show that the child has one or more specific mental or physical impairments, and these must be severe enough to warrant special education
IDEA, Pt B*

- Children/teens with ADHD may get special ed services under 3 categories:
  - Specific LD
  - Emotional disturbance (ED)
  - Other health impaired (OHI)
Section 504*

- Rehab Act of 1973: A civil rights law that prohibits discrimination, in fed. funded programs, solely based on disabilities, for otherwise qualified persons.

- No specific disability categories
  - Broadly defines disability as a “physical or mental impairment which limits one or more life activities”, including learning.