Behavioral Medicine III: ADHD and Conduct Disorders

Stanley P. Oakley, Jr, MD, FAPA
Professor
Department of Psychiatric Medicine
The Brody School of Medicine at East Carolina University
Greenville, North Carolina

Learning Objectives
1. Recognize the characteristics of ADHD in the child and adult.
2. Summarize the important comorbid conditions that can mimic attention deficit disorder.
   a. Oppositional defiant disorder
   b. Conduct disorder
   c. Bipolar disorder
   d. Mood disorders
   e. Learning disorders
3. Cite the management of these conditions with the following:
   a. Behavioral therapy
   b. Pharmacotherapy

1. Which of the following comorbidities is most common in boys with a diagnosis of ADHD?
   a. Oppositional defiant disorder (ODD)
   b. Conduct disorder
   c. Bipolar disorder
   d. Learning disability

   - A. Oppositional defiant disorder (ODD) 34%
   - B. Conduct disorder 31%
   - C. Bipolar disorder 2%
   - D. Learning disability 37%

2. Which of the following would NOT be consistent with a diagnosis of ADHD?
   a. Hyperactive-impulsive or inattentive symptoms causing impairment before age 7 years
   b. Impairment from symptoms is observed only at school, and not at home
   c. Clear evidence of a clinically significant impairment at a teen’s part-time job
   d. Six or more criteria present for > 6 months

   - A. Hyperactive-impulsive or inattentive symptoms causing impairment before age 7 years 8%
   - B. Impairment from symptoms is observed only at school, and not at home 85%
   - C. Clear evidence of a clinically significant impairment at a teen’s part-time job 8%
   - D. Six or more criteria present for > 6 months 2%

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Attention-Deficit/Hyperactivity Disorder (ADHD)
- Affects 5%-8% of school-aged children
- Persists into adulthood (4% of adults)
- Three subtypes:
  - Inattentive (DSM-IV, ICD-9; 314.00)
  - Hyperactive (DSM-IV, ICD-9; 314.01)
  - Combined (DSM-IV, ICD-9; 314.01)

Diagnosis of ADHD
- Six or more symptoms present
- Causes impairment in 2 or more settings:
  - School, work or home/personal life
  - Frequently comorbid with other childhood disorders

Inattentive Symptoms
- Makes careless mistakes
- Difficulty sustaining attention
- Does not listen
- Fails to finish tasks
- Poor organization
- Loses important belongings
- Distractible
- Forgetful
- Avoids jobs that require sustained mental effort

Hyperactive Symptoms
- Fidgets
- Difficulty sitting still
- Constantly restless
- Constantly driven
- Talks excessively
- Interrupts conversations
- Can’t wait turn

3. Which is true about adults with ADHD?
   A. They are unlikely to have their symptoms confirmed by spouses, coworkers, or employers
   B. They are more likely to be inattentive than hyperactive
   C. They have a lower incidence of substance abuse than age-matched peers
   D. They are unlikely to have children with ADHD

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**Adult ADHD**

- Strong genetic basis
  - 70% heritability (among highest for mental health disorders)
- Is more likely to be inattentive type
  (hyperactive type is picked up in childhood)
- Can be comorbid with impulse disorders
  (gambling, substance abuse)

**Adult Symptoms of ADHD**

- Poor job performance
- Frequent changing of jobs
- Career/academic underachievement
- Poor daily management
  - Paying bills, completing chores
- Chronic stress from failures
- Relationship difficulties from inattention and forgetfulness

**Diagnosis of ADHD**

- Meets DSM-IV criteria
- Various checklists
  - Conners Rating Scales
  - Wender Utah Rating Scale (for adults)
  - Brown ADD Scale
- Formal psychological testing for ADHD
- Therapeutic trials don’t work

**Differential Diagnosis & Comorbidity**

Newer estimates of comorbidity rates:
- Non-comorbid ADHD: 30%
- ODD: 60% males, 30% females
- Conduct disorder: boys > girls
- Depression: 30-40%
- Bipolar disorder: 20%
- Anxiety: up to 25%
- Learning disabilities: up to 30%

4. Research has shown that the optimal treatment approach for children with ADHD is:

A. Medication plus behavior modification
B. Medication alone
C. Behavior modification alone
D. Changing the child’s nutritional habits

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Treating ADHD: Evidence-based Medicine

• The optimal treatment approach for children with ADHD is medication with behavior modification
  – Multimodal Treatment Study of Children with ADHD: 600 children, ages 7-9 years
  – Randomly assigned to 4 groups (medication, behavior modification, combined, neither)
  – Combined approach superior in all areas
  – Medication alone was superior to behavior modification alone

Stimulants

• Greater than 80% response rate
• Stimulants improve ADHD by:
  – Blocking reuptake of dopamine and norepinephrine at the presynaptic neuron
  – Amphetamines directly release catecholamines
  – Inhibiting monoamine oxidase
• Goal is to decrease inattention, impulsivity, hyperactivity
• FDA indication for ADHD

Use of Stimulants for ADHD

• Schedule II controlled substance
• Also used for narcolepsy
• Need psychological evaluation to confirm ADHD and rule out learning disorder prior to use
• Side effects include insomnia, weight loss, and tics

Treatment of ADHD: Stimulants-Methylphenidate

• Short-acting methylphenidate
  – Methylenidate
  – Ritalin
  – Focalin
• Long-acting methylphenidate
  – Concerta
  – Ritalin LA, Ritalin SR
  – Metadate CD
• Transdermal form available

ADHD Stimulants-Amphetamines

• Short-acting amphetamine
  – Dextroamphetamine
  – Adderall (mixture of amphetamine salts)
• Long-acting amphetamine
  – Dexedrine Spansule
  – Adderall XR
  – Lisdexamfetamine (Vyvanse)

Side Effects of Stimulants

• Anorexia
• Insomnia
• Weight Loss, probably no effect on growth
• Irritability, Dysphoria, “withdrawal”
• Headaches
• Abdominal Pain
• Tics (4% incidence per year is baseline for this population)
5. A 13-year-old female with a history of anorexia nervosa is diagnosed with ADHD, inattentive type. What is the most reasonable FDA-approved treatment option?

A. Methylphenidate
B. Bupropion
C. Amphetamine/dextroamphetamine (Adderall)
D. Atomoxetine (Strattera)

Nonstimulant Drugs for ADHD

- Bupropion (not with seizures)
- Atomoxetine (Strattera)
  - Not a controlled substance
  - Is a norepinephrine reuptake inhibitor
  - Good for patients who find stimulants too activating, or patients with substance abuse history
  - FDA indication for ADHD

Nonpharmacologic Treatment for ADHD

- Schedule – Keep same routine
- Organize home and office items
- Use notebook organizers
- For adults, the book Driven to Distraction
- For children, clear and consistent guidance, rewards for following rules and successes

6. Which of the following is FALSE about the current recommendations regarding adverse cardiac outcomes with ADHD medications?

A. Laboratory testing prior to starting medication is at the physician's discretion
B. All patients should have an EKG performed prior to starting medication for ADHD
C. Patients with family histories of sudden cardiac death should have an echocardiography performed prior to starting ADHD medication
D. The risk of sudden cardiac death is higher in children treated with stimulants than in the general population
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Cardiac Recommendations

- AAP did not support the AHA recommendation that EKG be performed in ALL patients in advance of ADHD medication use
- Risk of sudden cardiac death
  - ADHD medication greater than general population
- Testing (EKG, echo) should be performed:
  - Family history of sudden cardiac death
  - Patient report of chest pain, shortness of breath, syncope/dizziness before/after medication use
  - Abnormal examination findings (initial and f/u)
  - Laboratory testing: at physician’s discretion

Differentiating Bipolar Disorder and ADHD

- Get a good history, including family history
- ADHD is known to be developmental, and symptoms can be seen in infancy
- ADHD is known to be continual, not episodic
- Mood symptoms can be secondary to frustration from ADHD, with short-lived tantrums
- Grandiosity needs to be seen in the context of development

Differentiating Bipolar Disorder and ADHD

- Bipolar disorder is more common after the age of 12
- Bipolar disorder is usually episodic
- Relatives of children with ADHD rarely have bipolar disorder
- Relatives of children with bipolar disorder frequently have bipolar disorder
- Bipolar disorder is not a label to use casually, especially when criteria are not clear in children

7. A child is argumentative, deliberately annoys others, blames others for his mistakes, and is vindictive. Based on these symptoms, which of the following is the most likely diagnosis?

A. Conduct disorder
B. ADHD, hyperactive/impulsive type
C. Oppositional defiant disorder
D. Bipolar disorder

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Oppositional Defiant Disorder (ODD)
• Pattern of negativism, hostility, defiance
• Includes:
  – Often loses temper
  – Often argues with adults
  – Deliberately annoys
  – Angry and resentful
  – Spiteful and vindictive

Treatment of ODD
• There is no medication for ODD
• There is medication for co-morbid conditions that may exacerbate ODD
• Parent Training, behavioral interventions

8. A 10-year-old male has been suspended from school five times for truancy, theft, and poking classmates with pins. What is the most likely diagnosis?
   A. ADHD, combined type
   B. Conduct disorder
   C. Oppositional defiant disorder
   D. Asperger’s syndrome

Conduct Disorder
• A repetitive and persistent pattern of behavior in which the basic rights of others or major societal norms are violated for at least 6 months.

Conduct Disorder
• Aggression to people and animals
• Destruction of property
• Deceitfulness or theft
• Serious violations of rules
• The disturbance causes clinically significant impairment
• Difficult to treat
  – May require off-label mood stabilizers
  – May require inpatient treatment, if severe
9. Which is NOT true of learning disabilities?

A. The disability interferes only with academic achievement, not social functioning
B. Dyscalculia refers to a disability with mathematics
C. Disorders of developmental speech and language may be expressive or receptive
D. Classroom modifications are more effective treatment strategies than medications

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Learning Disorders
- Significant discrepancy between school level, chronological age, intelligence, and academic performance or achievement
- This discrepancy significantly interferes with academic and/or social functioning
- Treatment: educational modifications
- Medication: only if a comorbidity exists that requires medication use

Common Learning Disorders
- Developmental speech/language disorders
  - Articulation, receptive/expressive language
- Academic skills disorders
  - Dyslexia (reading), dyscalculia (math), dysgraphia (writing)
- Nonverbal learning disability
  - Visual-spatial, visual-motor, sensory, motor
- Central auditory processing deficit
  - Distorted or incomplete auditory messages

10. Which is true of pervasive developmental disorders?

A. Onset usually occurs in infancy
B. Children with Asperger’s syndrome have the same level of intellectual disability as those with autistic disorder
C. Autistic disorder is equally as prevalent in boys as in girls
D. Autistic disorder has an earlier onset than Asperger’s syndrome

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**Pervasive Developmental Disorders (PDD)**

- Neurological disorders usually evident by age 3 years
- Difficulty in talking, playing with other children, and relating to others, including family
- Characterized by severe and pervasive impairment in several areas of development:
  - Social interaction skills
  - Communication skills
  - Stereotyped behavior, interests, and activities

**Autistic disorder (early infantile or childhood autism)**
- 4 times more common in boys than in girls
- Moderate to severe range of communication, socialization, and behavior problems
- Most also have mental retardation

**Rett syndrome (primarily females)**
- Development is normal in the first 6-18 months
- Regression or loss of abilities
- Meaningless gestures or movements

**Childhood disintegrative disorder (rare)**
- Regression in multiple areas of function following a period of at least 2 years of normal development
- Onset by age 10 years

**Asperger’s Syndrome**

- Later onset than autistic disorder
- Characteristics
  - Lack of social skills (poor eye contact, anxiety)
  - Difficulty understanding subtleties used in conversation
  - Difficulty with social relationships
  - Poor coordination
  - Poor concentration
  - Restricted range of interests
- Average to above average intelligence/language skills
  - Incorrectly referred to as high-functioning autism

**Key Points for the Exam**

- ODD: most common ADHD comorbidity
- ADHD has to be present in more than 1 setting
- Medication plus behavior modification: best ADHD treatment
- ADHD adults are primarily inattentive
- Learning disability can manifest socially
- Asperger’s is not high-functioning autism

**Answers**

1. A
2. B
3. B
4. A
5. D
6. B
7. C
8. B
9. A
10. D