

ADHD: Practical Guidelines for Diagnosis and Treatment

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Learning Objectives

- 1. Describe common signs and symptoms of ADHD in the child & adolescent population.
- 2. Summarize changes in diagnostic criteria in DSM 5 vs. DSM IV-TR
- 3. Describe treatments including pharmacologic and non-pharmacologic

Why does ADHD matter?

- Associated with poor school and occupational performance
- Individuals with ADHD are more likely to be injured
- Individuals with ADHD are more likely to have traffic accidents and citations
- Children with ADHD have problems with peer relationships and are more likely to experience rejection by peers
- Children with ADHD are more likely to develop conduct disorder in adolescence

ADHD Epidemiology

- Most common neurodevelopmental disorder in children
- 9.5% of children between the ages of 6 and 17 in the US have been diagnosed with ADHD
- Actual prevalence estimates 5% of children, 2.5% of adults
- 2:1 ratio of males to females in children
- Family practice doctors and pediatricians treat the majority of cases
- In the US, there are 8300 child psychiatrists compared to 54,000 pediatricians
- Suspected cases of ADHD account for 50% of referrals from pediatrics to child psychiatrists

Inattentive Sx

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities.
- Often has trouble holding attention on tasks or play activities.
- Often does not seem to listen when spoken to directly.
- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked).
- Often has trouble organizing tasks and activities.
- Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework).
- Often loses things necessary for tasks and activities (e.g. school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- Is often easily distracted
- Is often forgetful in daily activities.

Hyperactive/Impulsive Sx

- Often fidgets with or taps hands or feet, or squirms in seat.
- Often leaves seat in situations when remaining seated is expected.
- Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless).
- Often unable to play or take part in leisure activities quietly.
- Is often "on the go" acting as if "driven by a motor".
- Often talks excessively.
- Often blurts out an answer before a question has been completed.
- Often has trouble waiting his/her turn.
- Often interrupts or intrudes on others (e.g., butts into conversations or games)

Other qualifiers

- Sx must be present in 2 or more settings and persist for at least 6 months
- Several sx of inattention of hyperactivity were present before age 12
- The symptoms interfere with functioning in school, work, or social settings
- The symptoms are not accounted for by schizophrenia or another mental disorder

DSM 5 Changes

- Age of onset raised from before age 7 to before age 12
- 5/6 inattentive or hyperactive impulsive sx required for ages 17 and above
- May be diagnosed in comorbid Autism Spectrum Disorder
- Specifiers for type and severity
- Moved from category of Disruptive Behavior Disorders to Neurodevelopmental Disorders

Question 1

- Which of the following are changes in diagnostic criteria for ADHD that were made in DSM 5?
- A) ADHD may be diagnosed in the context of an Autism Spectrum Disorder
- B) Specifiers mild, moderate, and severe were added
- C) Age of onset increased from before 7 to before 12
- D) All of the above
- E) A and B only

Risk factors for ADHD

- Birth weight less than 1500 g associated with a 2-3 fold risk
- Correlation with smoking during pregnancy
- First degree relative with ADHD, heritability is estimated to be 76%
- Exposure to environmental toxins has been associated w/ ADHD, but causality has not been established

Non-pharmacological tx

- Preschool children (3-5 years): Parent training (PT)
- PT informs parents about ADHD and teaches them to use behavioral therapy techniques to shape their child's behavior
- Programs are structured and require a trained therapist and specific number of sessions
- Examples are New Forest Parenting Programme, Triple P, and The Incredible Years
- Efficacy of these programs demonstrated in 3 RCTs

Non-pharm tx continued

- School age children (6-12 years): Parent training, Social skills training (SST), and school-based interventions
- Social skills training fosters the ability of children with ADHD to behave in ways that enable them to establish and maintain constructive social relationships
- School-based interventions educate teachers about ADHD and help them implement specific behavioral techniques in the classroom. Techniques include positive reinforcement, effective rules, using time outs

Non-pharm tx continued

- Adolescents (13-18 years): approximately 50% of children with ADHD continue to meet diagnostic criteria during adolescence
- Hyperactivity decreases, inattention persists, impulsivity may lead to risk taking behaviors and conflict with adults
- Evidence for psychological tx in this age group not as robust, as research has focused on pharmacological tx

What if the non-pharm tx don't help?

Psychostimulants

- Methylphenidate and amphetamines are first-line agents
- Mechanisms of action: blocking dopamine and norepinephrine transporters, slowing the action of monoamine oxidase, increased release of dopamine into the synaptic cleft
- Common side effects: HA, loss of appetite, abdominal pain, sleep disturbance
- Other SE: increased BP and HR, modest reduction in height, irritability, emotional lability, psychosis, abuse & dependence

Methylphenidate preparations

- Long acting preparations generally recommended over short acting as they can be dosed once daily and have more steady blood levels
- LA preparations have lower potential for abuse and diversion
- Concerta has an osmotic release oral system. Initial dose: 18 mg. Max dose: 54 mg under 13 yo, 72 mg over 13 yo. Duration of action is 12 hours.
- Immediate release methylphenidate (Ritalin, Methylin) starting dose is 5 mg. Max dose 60 mg. Must be given 2-3 times per day. Duration of action 3-5 h.

Amphetamine preparations

- Long acting: Adderall XR
- Starting dose: 5 mg daily
- Max dose: 40 mg daily
- May be dosed once daily
- Duration of action: 10 hours
- Short acting: Adderall. Starting dose 2.5-5 mg, max dose 40 mg daily

Response rates

- More than 90% of pts will have a positive response to psychostimulants.
- 25% of pts respond only to methylphenidate or amphetamine preparations but not both.
- Drug “holidays” are an option because stimulants work on the day they are given. Consider stopping stimulants during school breaks.
- Parents may give them 7 days a week or only on school days. No weaning required.

Atomoxetine (Strattera)

- Helpful for pts with comorbid ADHD and anxiety
- Potent NE reuptake inhibitor
- Dosing: pts under 70 kg start at 0.5 mg/kg/d for 1 week, then increase to 1.2 mg/kg/d
- Dosing for pts over 70 kg: start with 40 mg, may increase to 100 mg daily
- Does not produce euphoria or sleep disturbance
- Does not have potential for abuse

Atomoxetine

- Common SE: sedation, fatigue, upset stomach, nausea, vomiting, reduced appetite, irritability, HA
- Rare side effects: suicidal ideation, hepatotoxicity, increased BP and HR, growth delays in first 1-2 y with return to expected measurements after 2-3 y of tx
- Consider using atomoxetine in pts w/ comorbid anxiety, substance abuse, insomnia

Question 2

- What are the most **common** side effects of stimulant medications?
- A) Psychosis
- B) Mania
- C) Headache
- D) Appetite suppression
- E) Insomnia
- F) C, D, E

Alpha Agonists

- Considered second-line behind stimulants because efficacy and response rate are lower.
- Also used to treat tics and oppositional/aggressive behavior.
- Mechanism: stimulation of pre and post synaptic alpha 2 receptors. These receptors control release of NE and rate of cell firing.
- Tenex and Clonidine are both available in short and long acting forms.
- No risk of abuse.

Tenex

- Long acting form is Intuniv and may be dosed once daily.
- Short acting form (guanfacine) may be dosed 2-3 times daily.
- Generally less sedating than clonidine.
- Starting dose is 1 mg, max dose is 4 mg daily.
- Due to effects on HR and BP, Tenex should be administered daily and dose should be tapered rather than abruptly discontinued.

Clonidine

- More sedating than Tenex. HS dosing may be useful for sleep disorders
- Extended release form is Kapvay
- Starting dose is 0.1 mg (may even start 0.05 mg for younger children)
- Max dose is 0.4 mg
- Side effects common to Tenex and clonidine: sedation, dizziness, HA, hypotension, bradycardia, increased QT interval

Omega-3 fatty acids

- May be considered for families that do not want to use stimulants or alpha-
 - agonists
- Studies have demonstrated small but statistically significant improvements in ADHD sx
- Improvements in ADHD sx associated with high doses of EPA
 - (eicosapentaenoic acid). Goal is 800 mg EPA daily.
- Given modest effect sizes, omega-3 FA monotherapy is not recommended for children with severe ADHD sx.

What are options for children with ADHD whose parents do not want medications?

- A) Concerta 18 mg daily
- B) Nothing, medications are the only option
- C) Parent training
- D) Behavioral therapy
- E) Omega-3 fatty acids
- F) All of the above

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