Attention-Deficit Hyperactivity Disorder:
A Psychiatrist’s Perspective

Roshni Koli, MD
Objectives

1. Use clinical practice guidelines to diagnose ADHD.
2. Describe the approach to treating ADHD.
3. Describe risks and benefits of specific treatments of ADHD.
Diagnostic Criteria for ADHD
Inattention

A. 6+ of the following for more than 6 months *(5+ if 17 y/o and up)*

1. Fails to maintain attention or makes careless mistakes
2. Difficulty *sustaining attention* in tasks or play
3. Does not seem to listen when spoken to directly *(mind wandering)*
4. Does not follow through on instructions and fails to finish homework
5. Difficulty organizing tasks, messy, *disorganized*
6. Avoids or dislikes tasks that require sustained attention
7. Often loses things necessary for daily activities (books, keys, phone, etc.)
8. Easily distracted by external stimuli or unrelated thoughts
9. Forgetful in daily activities

B. Symptoms started before age 12 AND interfere with social and/or academic functioning
Impulsivity/Hyperactivity

A. 6+ of the following for more than 6 months (*5+ if 17 y/o and up*)
   1. Fidgets with or taps hands, feet, or squirms in seat
   2. Leaves seat, when supposed to remain seated (school, church, etc.)
   3. Restless “running all over the room”
   4. Unable to play or to engage in leisure activities due to hyperactivity
   5. Often “On the go” or “driven by a motor”
   6. Talks excessively
   7. Blurts out answers before the question has been completed
   8. Difficulty waiting their turn
   9. Often interrupts or intrudes on others

B. Symptoms started before age 12 AND interfere with social and/or academic functioning
ADHD- Combined Type

A. Must meet full criteria for both Inattention and Impulsivity (Hyperactivity)

B. Symptoms started before age 12 AND interfere with social and/or academic functioning
Differential Diagnosis for Inattention

- Sleep Issues (OSA, Poor Sleep Hygiene, etc.)
- Anxiety
- Depression
- Absence Seizures
- Learning Disabilities
- Hearing/Vision Issues
- Psychosis (Negative Symptoms, Withdrawal)
- Drugs (Marijuana, Benzos, Opiates)
- Lead Intoxication
Differential Diagnosis for Hyperactivity

- Oppositional & Conduct Disorders
- Drugs (Marijuana, K2, PCP, Meth, etc)
- Sleep Disorders
- Depression (Irritability)
- Learning Disabilities
- Hearing Issues
- Psychosis (Positive Symptoms)
- Mania
Common Co-Morbid Diagnoses w/ADHD

- Oppositional Defiant Disorder
- Substance Use
- Autism Spectrum Disorder
  - Other Neurodevelopmental Disorders
- Learning Disabilities
- Anxiety Disorders
  - GAD
  - Social Anxiety Disorder
- Depression
- Obsessive-Compulsive Disorder
Common Co-Morbid Diagnoses w/ADHD

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  - Other Neurodevelopmental Disorders
- Learning Disabilities
- Anxiety Disorders
  - GAD
  - Social Anxiety Disorder
- Depression
- Obsessive-Compulsive Disorder

At substantially higher risk of Substance Use Disorders later in life
Diagnosis and Assessment
Assessing for ADHD in the clinic

• STEP 1: Obtain a detailed history and rule out medical causes of symptoms if indicated. Also assess for other psychiatric disorders (Anxiety, Depression, OCD, etc)

• STEP 2: Obtain verification of symptom severity from multiple sources via direct communication or screening tools:
  • Vanderbilt (Free, Simple, First Choice)
  • Conner’s (Higher Internal Validity)
Assessment of ADHD

• STEP 1: Obtain a detailed history and rule out medical causes of symptoms if indicated. Also assess for other psychiatric disorders (Anxiety, Depression, OCD, etc)

• STEP 2: Obtain verification of symptom severity from multiple sources via direct communication or screening tools:
  • Vanderbilt (Free, Simple, First Choice)
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Age Based Treatment Guidelines

- School Based Interventions are important at any age
- 4-5yo:
  - Start with Behavioral Interventions
  - Only use medications if no improvement with sustained trial of Behavioral Interventions
- 6-11yo:
  - Medication
  - +/- Behavioral Interventions
  - Combination treatment is favored
- 12-18yo
  - Medication
  - Behavioral Interventions for any co-morbid issues
  - Assess for Substance Misuse
School Based Interventions

• Strongly encourage parent/caregiver to request 504 accommodations for ADHD upon diagnosis.
  • Request must be submitted to school in writing
  • School interventions can include:
    • Seat placement at the front of the classroom
    • Teacher checking in with child for understanding
    • Frequent cues to redirect child
    • Low distraction testing environment
School Based Interventions

• When should the family ask for an IEP evaluation?
  • Parent has the right to request an evaluation for an IEP at any time
  • If there are concerns about Comorbid:
    • Learning Disabilities
    • Oppositional Defiant Disorder/Conduct Disorder
    • Autism Spectrum Disorder
    • Anxiety Disorder
    • OCD or Tourette's Disorder
  • Recommend families pursue an IEP with Psychoeducational testing if accommodations via the 504 aren’t helping.
Case Example
Case #1  Mateo

• 12-year-old boy who just started the 7th grade

• No current mood symptoms

• No history of any psychiatric history or behavioral problems

• Grades worsening at school
  • Teacher concerned that he is “not listening and not following directions”
  • Mom states he’s always been “sort of a space cadet”
Case #1 Mateo

- Mateo’s grades in Elementary School were average

- Mateo reports:
  - He fails to do homework because he forgets and gets discouraged by the amount of reading required
  - He occasionally forgets to bring his completed homework back to class
  - He needs frequent reminders to complete tasks, such as cleaning his room
Case #1  Mateo

- You see inside his backpack
  - It’s a mess of crumpled up papers and trash.

- He tells you: “I don’t want to go to school anymore. I don’t like it there.”

- Family History:
  - Older brother has ODD
  - Father had “childhood ADHD”
  - Maternal Grandmother has Anxiety
Case #1  Mateo

Differential Diagnosis?
Case #1  Mateo

Diagnosis
- Inattentive Type ADHD

Differential Diagnosis
- Anxiety
- Absence Seizures
- Learning Disability
Case #1  Mateo

What would you try first?

1. Atomoxetine (Strattera)
2. Guanfacine ER (Intuniv)
3. Amphetamine (Adderall IR)
4. Methylphenidate ER (Concerta)
Medications
Multimodal Treatment of ADHD Study (MTA) 1999 (Update in 2009)

- 600 kids (aged 7-9) w/ADHD randomized to 4 groups x14 months
  - Medication - Ritalin (Methylphenidate) TID
  - Therapy
  - Medication & Therapy
  - Control Group

- Inattention and Hyperactivity Symptoms
  - Medication and Combination >> Therapy and Control

- Anxiety, Social Skills, Parent-Child Relation
  - Combination >> Medication, Therapy, and Control
Multimodal Treatment of ADHD Study (MTA) 1999 (Update in 2009)

- Medication Group (Over 14 months)
  - Ritalin IR TID
  - 4% had adverse effects that led to cessation of treatment
    - Loss of Appetite
    - Sleep Problems
    - Crying Spells
    - Tics
  - Medication Group (7 days a week of Stimulant)
    - 1.96 cm reduction in expected height growth
    - 2.89 kg reduction in expected weight gain
ADHD Treatment Pathway

**Short Acting (FDA Approved down to 3 years old)**
- Adderall (Mixed AMPH Salts) Tabs 4-6 hr
- ProCentra (d-AMPH Sulfate) Liquid 4-6 hr

**Long Acting (FDA approved down to 6 years old)**
- Adderall XR (Mixed AMPH Salt) Caps 6-10 hr
- Vyvanse (Lis-dexamphetamine) Caps/Chew 6-12 hr
- Dynavel XR (d+L AMPH sulfate) Liquid 6-10 hr
### ADHD Treatment Pathway

**Methylphenidate**

#### Short Acting (FDA Approved down to 6 years old)
- Ritalin (methylphenidate) Tabs 4-6 hr
- Focalin (dexamethesphenidate) Tabs 4-6 hr
- Methylin Chewable Chew 4-6 hr
- Methylin Solution Liquid 4-6 hr

#### Long Acting (FDA Approved down to 6 years old)
- Concerta (Methyphenidate-OROS)Tabs 8-12 hr
- Ritalin LA Caps 6-10 hr
- Quillichew ER Chew 8-12 hr
- Quillivant XR Liquid 8-10 hr
ADHD Medication Pathway

- Amphetamine
- Methylphenidate
- Stimulant + Alpha 2
- Strattera + Alpha 2
- Atomoxetine (Strattera)

Alpha-2 Agonist
# ADHD Treatment Pathway

### Alpha-2 Agonist

<table>
<thead>
<tr>
<th>Short Acting</th>
<th>Long Acting</th>
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<tbody>
<tr>
<td>Guanfacine (Tenex)</td>
<td>Guanfacine ER (Intuniv)</td>
</tr>
<tr>
<td>Clonidine</td>
<td>Clonidine ER (Kapvay)</td>
</tr>
</tbody>
</table>

**Pearls:**
- Clonidine has 10x the affinity for the Alpha 2 receptor than Guanfacine
  - 0.1 mg of Clonidine = 1 mg of Guanfacine
- Clonidine is less specific for frontal and limbic A2 receptors and causes more sedation, hypotension, bradycardia.
- Taper off, if on it longer than 1 week to avoid rebound hypertension/tachycardia.
ADHD Treatment Pathway

Atomoxetine (Strattera)

Norepinephrine Reuptake Inhibitor
- Minimal Serotonin and Dopamine Reuptake Activity

Slightly less effective than Stimulants
Not addictive, no risk of diversion by patient/family members
Black Box Warning for increased SI in early treatment

Dosing:
< 70kg    Start at 0.5mg/kg daily and increase by 0.2 mg/kg every 2 weeks to efficacy or a max of 1.2mg/kg
>70kg     Start at 40mg daily and increase by 20mg to every 2 weeks to efficacy or a max of 100mg
ADHD Treatment Pathway

When to add an Alpha-2 Agonist to your Stimulant or Strattera?
- Partial Response to Maximum Dose of Stimulant
- Significant Hyperactivity / Impulsivity
- Sleep trouble due to hyperactivity at night

Significant amount of data demonstrates safety and efficacy of combination Stimulant-Alpha 2 therapy.

Often more effective in Hyperactive or Combined Type ADHD as well as ADHD in the setting of ASD, ID, or other Neurodevelopmental Disorders.
Best Practices for Psychosocial / Non-Medical ADHD Intervention

David F. Curtis, Ph.D.
AAP Clinical Practice Guideline: Treatment of the School-Aged Child with ADHD

REC 1: Primary care clinicians should establish a mgmt program that recognizes ADHD as a chronic condition.

REC 2: The treating clinician, parents, & the child, in collaboration with school personnel, should specify appropriate target outcomes to guide management.

REC 3: The clinician should recommend stimulant medication &/or behavior therapy as appropriate, to improve target outcomes in children with ADHD.
Well-Established Psychosocial Treatments for ADHD

1. Parent Management Training / Behavioral Parent Training

2. Behavioral Classroom Management

3. Behavioral Peer Interventions in Recreational Settings (i.e. Summer Treatment Programs)

4. Organizational Skills Training
PMT/BPT - Parenting Interventions

Modalities:
- Parents only
- Parents & child together (Family Skills Training)
- Multi-family PMT with Separate Child-Focused Intervention

Key Components:
- Psychoeducation re: ADHD
- Child Directed Interaction
- Prevention & Generalization Training
- Parent Directed Interaction

Example PMT Programs:
- Triple P: Positive Parenting Program (Sanders, 1999)
- COPE: Community Parenting Education (Cunningham, 2007)
- ADHD Parent Training Manual (Barkley & Murphy, 2006)
Summer Treatment Programs (STP)

- 8-week summer day camp setting for grades 1-6
- Group sessions consist of 15 children
- 4 clinical staff members per group
- Focus on group interaction and friendships
- 2-hrs/day in classroom behavior modification activities
- Behavior mgt system used in games & group activities
Behavioral Classroom Management

• Behavioral Intervention Plans (BIPs) - Special Education
  • Identification of 2-3 “target behaviors” to improve
  • Typically includes rewards systems
  • Incorporates teacher-parent communication systems (e.g. daily behavioral reports)
  • Involves semi-annual review by district-level intervention team

• 504 Plan Classroom Accommodations
  • Primarily offers adjustments to the environment to compensate for ADHD-related impairments (preferential seating, extended time, etc.)
  • Goal is to prevent discrimination for having a disability
Organizational Skills Training

• 1-2x per week sessions in clinic or school settings

• Teaches organizational rules (scheduling, using checklists, etc.)

• Techniques for:
  • tracking & monitoring assignments - managing materials
  • developing good homework habits - planning for projects
  • addressing family conflict

• Contingent Reward System for compliance / success

Treatments NOT Meeting Evidence-Based Criteria for ADHD

- Dietary / Nutritional Intervention
- Holistic Medicines
- Exercise / Physical Therapy
- EEG & Thermal Biofeedback

- Play Therapy
- Individual or Group Psychotherapy:
  - Cognitive-Behavioral Therapy (CBT)
  - Insight Oriented & Interpersonal Therapies
Why Don’t Traditional Child Therapies Work for Children with ADHD?

1) Problems are *performance-bound*, not *ability-bound*  
   • Clinically imparted skills are not generalized  
   • Generalization needs “external prosthesis” due to *temporal myopia*

2) Thought *process oriented dysfunction*, not thought *content oriented*  
   • Cognitive processes are disorganized  
   • Cognitions not necessarily distorted  
   • CBT focuses on promoting effective inhibition

3) Symptoms are *extensions of normal behaviors*  
   • How severe must behavior be for impairment?
Common Elements of Best Practices

• **Environmental Control**
  • Requires consistent adult support/guidance
  • Improves behavioral expectations & limit setting
  • Increases structure & routines

• **Contingency Management Strategies**
  • Uses reward systems to improve motivation
  • Rigorous *behavioral* methods to address ABCs
  • Antecedents, Behaviors, & Consequences
Age-Related AAP Treatment Guidelines

• ≤ 6-years-old
  • Begin with behavioral/psychosocial interventions
  • Defer medication trial, pending response to behavior therapy
    • Unless patient’s behavior presents marked safety risks (e.g. violent over-reactions to redirection; proclivity to run from parents in busy parking lot, etc.)

• ≥ 7-years-old
  • Initiate Combination of psychostimulants and behavior therapy
  • Defer non-stimulant therapies, pending failure of 2 stimulant trials


5. MTA Cooperative Group. A 14 month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder (ADHD). *Gen Psychiatry* 1999; 56:1073-1086


