

# Attention-Deficit Disorder

## Diagnosis and Management in Primary Care

Tim R Brown, PharmD  
Director of Clinical Pharmacotherapy  
Center for Family Medicine  
Akron General Medical Center

## Educational Objectives

- Understand the diagnostic criteria for ADD
- List at least three different medications to treat ADD
- List at least four intervention strategies

## Myths about ADD

- ADD is a fad
- ADD is overdiagnosed
- ADD is only a minor problem
- Everyone outgrows ADD by the age of 13
- People seeking an ADD diagnosis are just drug seekers
- People with ADD should just try harder

## Diagnosis

- Symptoms for at least 6 months
- Symptoms present before age 7 years
- Impairment from symptoms in two or more settings
- Significant impairment: social, academic or occupational
- Exclude other mental disorders

## Primary ADD Symptoms/Dx

- **Inattention** in routine situations
  - distractibility
  - disorganization
- **Hyperactivity-Impulsivity**

## Medical Conditions that may look like ADHD

- Allergies, asthma and respiratory problems
- Diabetes/hypoglycemia
- Hearing or visual problems
- Iron deficiency anemia
- Lead intoxication
- Medications
- Neurological problems

## Medical Conditions that may look like ADHD

- Thyroid problems
- Other school or learning problems
  - school adjustment/placement
  - dyslexia
- Nutritional deficits
- Psychiatric conditions
  - depression
  - anxiety

## Contributing psychosocial conditions

- Neglect or serious family problems
- Unrealistic parental expectations
- Cultural differences
- Physical problems/handicaps

## Co-morbid conditions

- 40% ODD
- 27% Anxiety
- 26% Reading problem
- 22% Mood
- 22% Conduct disorder
- 22% Smoking
- 18% Substance use disorder
- 10% Tics

## ADD throughout the Lifecycle

- Infancy
- Toddlers
- Primary School
- Adolescence
- Adulthood

## Intervention Strategies

- Education
- Support
- Parent training
- Behavior shaping/modification
- Social skills work
- Classroom/homework strategies
- Medication

## Causes of ADD

- Genetic contribution
- Maternal alcohol or drug use
- Birth trauma
- Jaundice
- Brain infections
- Head trauma

## Clinical Subtypes of ADD

- AD/HD, combined type with sx of both inattention and hyperactivity-impulsivity
- AD/HD, inattentive subtype
- Overfocused ADD
- Temporal lobe ADD
- Limbic ADD

## Attention/Focus Symptoms

- Short attention span
- Distractibility
- Disorganization
- Low energy
- Low motivation
- Off-task behavior

## Hyperactivity-Impulsivity Symptoms

- Restlessness
- Hyperactivity
- Excessive talking
- Impulsivity
- Interrupting
- Acts as if driven by a motor
- Poor judgment or forethought

## ADD/Overfocus Symptoms

- ADD symptoms plus cognitive inflexibility
- Trouble shifting attention
- Stuck on negative thoughts or behaviors
- Worrying
- Holds grudges
- Argumentative, oppositional
- Trouble with change, need for sameness

## ADD/Depressive/Limbic Symptoms

- ADD symptoms plus moodiness, irritability
- Negativity
- Low energy, low motivation
- Low self-esteem, guilt
- Social isolation
- Decreased ability to experience pleasure
- Feelings of helplessness

## ADD/Temporal Lobe Symptoms

- ADD symptoms plus short fuse, irritability
- Misinterprets comments
- Periods of anxiety without clear reason
- Visual/auditory illusions, (i.e. seeing shadows or hearing sounds)
- Frequent déjà vu, history of head injury
- Family history of rages, memory problems
- Struggles with reading comprehension

## Why Stimulants to a Hyperactive Child?

## ADD Treatment Ideas/Hints/Suggestions

- When combination medications are needed, choose first medication to deal with most significant symptom. Start one medication at a time.
- When there are both temporal lobe and overfocus problems, treat temporal lobe issues first.
- Less is not better. Strive for the best dose, not the least amount possible.
- Medication by itself is not the best treatment for ADD. Combine with intervention strategies.
- Have patients keep mood and concentration logs
- See patients with their spouses and parents to get additional information on history and progress

## AD/HD and Stimulants

- Common Drugs Stimulants
  - Methylphenidate (Ritalin)
  - Dextroamphetamine
    - Adderall is a combination product
  - Pemoline (Cylert)
  - Strattera

## Methylphenidate - C II

- Ritalin ER/SR, Concerta, Metadate ER/CD, Daytrana
- Activity: arouses the brain
- Monitoring: ↑ heart rate, dizzy, nervous, insomnia, headache, weight loss, blurred vision
- Interactions: ↑ levels of SSRIs & seizure meds
- Duration varies depending on product
- Use in kids 6yo and up

## Methylphenidate

- Hot new dosage form is the patch called Daytrana
- Had issues with falling off midday
- Starting dose is 10mg/ day based on a 9 hour wear time
- Dosing equivalents
  - 4 patch strengths: 10mg, 15mg, 20mg and 30mg
- Reformulated June 07
  - Better adhesive
  - Less irritation

## Dextroamphetamine - C-II

- Adderall is form used most often
- Activity: ↑ dopamine & norepinephrine
- Monitoring: ↑ BP & heart rate, tremor, insomnia, tics, euphoria, dizzy, weight loss
- Interactions: all other stimulants, seizure meds, antihistamines, antacids
- Dose: 2.5-5mg /d up to 40mg max
- Do not use in kids <3yo

## Vyvanse

- Launched late 07
- A prodrug of dextroamphetamine
  - Converted in GI system
  - Food does not affect the conversion
- Dosed for kids 6-12 yo
- Starting dose is 30mg with titration weekly with 20mg increments
- Capsule can be opened if needed

## Pemoline (Cylert) - C-IV

- Activity: ↑ dopamine
- Monitorings: seizures, insomnia, hallucinations, headache, nausea, jaundice, movement disorders
- Interactions: stimulants, depressants, insulin
- Dose: 37.5mg/d to max of 112.5mg/d
- May take 3-4 weeks to see effect
- Use in kids >6yo and up

## Strattera

- Activity: increases NE (we think) but not a stimulant
- Does have black box warning of suicide esp in the first month of use
- Monitorings: LFTs, insomnia, CP, palpitations, urinary retention
- Interactions: Paxil, Prozac, other inhibitors
- Use in kids >6yo
- Dose: 1x/d or 2x/d
  - <70kg - 0.5mg/kg/d then increased to 1.2mg/kg/d after 3d (max 1.4mg/kg or 100mg)
  - >70kg - 40mg/d increase to 80mg/d to max of 100mg/d

## Antidepressants for ADD

Not used as much secondary to suicide risk and black box

## Tricyclic Antidepressants

- Amitriptyline (Elavil), Nortriptyline (Pamelor), Imipramine (Tofranil), Desipramine (Norpramin)
- Activity: block norepinephrine & serotonin reuptake
- Monitorings: sedation, dry mouth, urinary retention, constipation, arrhythmias
- Interactions: too many to list
- Cautions: ↓ activity, *can OD easily*, always thirsty, can interact with many OTC and herbals
- Dosing Issues
  - Narrow window and needs monitoring

## SSRIs

- Most common class
  - Fluoxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), citalopram (Celexa) and Escitalopram (Lexapro)
- Overall, well tolerated
- Relatively safe in overdose
- High rate of side effects
- Has several drug interactions
- Withdrawal syndrome - requires tapering over several weeks (especially paroxetine)

## SSRIs

- Activity: increases serotonin
- Monitorings: headache, nausea/ diarrhea, insomnia or drowsiness, dizzy, sexual dysfunction
- Interactions: numerous
- Dosing based on the drug
- Titrate every 4-6 weeks
- Indicated for kids
  - Prozac at 5yo                      -Zoloft at 6yo
  - Paxil at 8yo                        Celexa not indicated
- Liquid forms of Prozac, Paxil, Celexa, Zoloft

## SNRIs

- Venlafaxine (Effexor) and Duloxetine (Cymbalta) - **not indicated for use in kids**
- Really Mutts-dual actions
- Created in hopes of decreasing side effects
- Alternative therapy when SSRI does not work

## SNRIs

- Activity: increases norepinephrine and serotonin for faster onset - not proven
- Monitorings:
  - Similar to SSRI's    -Nausea
  - Hypertension (esp >300mg/day)
  - Safer than TCA's in overdose
- Interactions: do not use with SSRIs
- Dose for AD/HD: 12.5mg every day to max of 50mg/d - used for Overfocus symptoms

## Miscellaneous-Wellbutrin

- Also used for smoking cessation under name Zyban
- In kids used more for hyperactivity & impulsivity in AD/HD
- Alternate agent but appears less effective than others in depression

## Miscellaneous- Wellbutrin

- Activity: increases dopamine
- Monitorings: increases libido, insomnia, dry mouth, headache, nervous, seizures
- Interactions: any drug that also causes seizures
- Dose: 1.4-6mg/kg/d

So Where Do the Drugs Fit?

## Medications for Attentional/Focus Symptoms

- | • First-Line Meds   | • Second-Line Meds   |
|---|--|
| <ul style="list-style-type: none"><li>• Adderall</li><li>• Methylphenidate</li><li>• Dextroamphetamine</li><li>• Pemoline</li><li>• Methamphetamine</li></ul> | <ul style="list-style-type: none"><li>• Imipramine</li><li>• Bupropion</li><li>• Desipramine</li><li>• Nortryptiline</li></ul> |

## Medications for Hyperactivity-Impulsivity Symptoms

- | • First-Line Meds   | • Second-Line Meds  |
|---|---|
| <ul style="list-style-type: none"><li>• Adderall</li><li>• Methylphenidate</li><li>• Dextroamphetamine</li><li>• Pemoline</li><li>• Methamphetamine</li></ul> | <ul style="list-style-type: none"><li>• Guanfacine</li><li>• Clonidine</li><li>• Imipramine</li><li>• Bupropion</li></ul> |

## Medications for ADD/Overfocus Symptoms

- | • First-Line Meds   | • Second-Line Meds                                     |
|---|--|
| <ul style="list-style-type: none"><li>• Effexor/Cymbalta</li><li>• Zoloft</li><li>• Paxil</li><li>• Prozac</li><li>• Celexa</li><li>• Lexapro</li></ul> | <ul style="list-style-type: none"><li>• none</li></ul> |

## Medications for ADD/Depressive /Limbic Symptoms

- | • First-Line Meds  | • Second-Line Meds  |
|--|---|
| <ul style="list-style-type: none"><li>• Imipramine/Desipramine</li><li>• Bupropion</li><li>• SSRIs</li></ul> | <ul style="list-style-type: none"><li>• SNRIs</li><li>• Nortryptiline</li></ul> |

## Source

“Attention-Deficit Disorder: A Guide for Primary Care Physicians” by Daniel G. Amen MD and Brian Goldman, MD in Primary Psychiatry, July 1998, pp76-85.