

Psychopharmacologic Management of ADD/ADHD

AN OVERVIEW

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Overview

Introduction

- Epidemiology
- Diagnosis
- Non-Pharmacologic Options
- Pharmacology
 - Stimulants
 - Non-Stimulant Medications

News/Developments

Sources

Kaplan & Sadock's Comprehensive Textbook of Psychiatry

- Ninth Edition
- Chapter 42.1: Attention-Deficit/Hyperactivity Disorder pp3560-3572
- Chapter 42.2: Adult Manifestations of Attention-Deficit/Hyperactivity Disorder pp3572-3579
- (CHADD reference page 3577)

- Other sources will be specifically named

Epidemiology

ADHD

- Is the most commonly diagnosed childhood behavioral disorder in outpatient settings in the United States.
- Has an estimated worldwide prevalence of 5.2%
- The majority will continue to have impairment into adult life
- Was first described in 1902 by George Still, has gone by different names over time, was first treated with stimulants in the 1930s
- Was thought to be strictly a disorder of childhood until the 1970s, when Paul Wender & colleagues described a group of adults with persistence of symptoms who responded positively to medications
- Prevalence in adulthood estimated at 4.4%

Epidemiology/Phenomenology

With age: Hyperactive/Impulsive symptoms subside.

Effects (from data, large samples, reliable):

- **In children:** aggressiveness and impulsivity affect socialization.
- Academic/functional struggles (grades, disorganization, keeping room clean, learning other skills) affect self-esteem adversely
- **In adults:** poorer lifetime academic achievement, poorer work histories
- Lower self-esteem, failures in long-term relationships, more car accidents and moving violations, more difficulty with sobriety

Biology

Heredity:

- Studies (twin, adoption, etc) have shown ADHD to be as inherited as height ($H= 0.68$). Clinically, this means there is likely another affected family member. If a parent has ADHD, 50% of his/her offspring will as well.

Brain Regions/Neurotransmitters

Anatomical dysfunction in the Prefrontal Cortex, Basal Ganglia

Dopamine and Noradrenergic Systems

Diagnosis

DSM criteria (will use DSM-IV, then explain **changes with DSM-V**)

Either (1) or (2)

1) **Six** symptoms of inattentiveness

- Fails to give close attention to detail/makes careless mistakes
- Difficulty sustaining attention in tasks or play
- Does not seem to listen when spoken to directly
- Difficulty organizing tasks/activities
- Avoids/dislikes tasks that involve sustained mental effort
- Loses things necessary for activities (pencils, books, toys, equipment)
- Easily distracted by extraneous stimuli
- Forgetful in daily activities

Diagnosis

2) Six or more symptoms of Hyperactivity/Impulsivity

- Often fidgets with hands or squirms in seat
- Often leaves seat in situations where remaining seated is expected
- Often runs or climbs when it is inappropriate to do so (adolescents/adults may have feeling of restlessness)
- Often has difficulty playing or engaging in leisure activities quietly
- Is often “on-the-go” or “driven by a motor”
- Talks excessively
- Often blurts out answers before questions is completed
- Difficulty awaiting turns
- Often interrupts or intrudes upon others

Diagnosis

Symptoms present before age 7 years (Changed for DSM-V because found not to be clinically relevant AND patients found to be poor historians)

Symptoms present in two or more settings

Clear evidence of impairment (may be **relative** impairment)

Symptoms are not accounted for by another condition (more to follow)

TYPES

- ADHD combined type (inattention and hyperactivity/impulsivity)
- ADHD, predominately inattentive type
- ADHD, predominately hyperactive/impulsive type
- +/- partial remission for patients who are being treated

Diagnosis

THE GOLD STANDARD FOR DIAGNOSIS IS THE CLINICAL EXAM

- There is sometimes a role for neuropsychological testing, rating scales, etc, but not usually

Differential Diagnosis

What do we have to rule out to know we are dealing with ADHD and not something else?

- Medical condition (accompanying physical symptoms, sudden/new onset, etc), including baseline assessment of height and weight, (EKG?)
- Mood Disorder (Bipolar Disorder: “episodic”, Major Depression: “pseudodementia”)
- Anxiety Disorder (Excessive worry, OCD)
- Personality Disorder (Impulsive, chaotic)
- Substance Use Disorder
- Malingering
- Pervasive Developmental Disorder/[Asperger’s](#)
- (Inappropriate expectations)

Co-Occurring Disorders

ADHD has a very high comorbidity with all other categories of Psychiatric/Mental Illness

Medical: Tic, Seizures

Behavioral: Conduct Disorders

Psychiatric:

- Anxiety Disorders
- Mood Disorders (16% of patients with Depression, 13% with any mood disorder)
- Developmental Disorders
- Substance Use Disorder (12% with substance abuse, 25% with substance dependence, rates lower for those who have been medicated appropriately)

What do Clinicians Really Talk About?

(Not from Kaplan-Sadock, from conferences and years of experience)

Obvious functional impairment: Academics, Occupational History

More Subtle (“Executive Function”)

- Disorganization
- Forgetfulness – loses, forgets, always misplacing things
- Procrastination
- Late fees/poor credit
- Driving history
- Neatness
- Examples: cleaning, shopping, paying the bills

Non-Pharmacologic Treatments

Exercise

- 1978, Shipman, noticed that the effects of exercise were the same as the effects of medications. These results have been replicated in several studies since. Current recommendation is for adults with ADHD to run at least 11 miles per week.

Psychotherapy

- More structured types of therapy (CBT, parenting/behavioral strategies) have better results, sometimes not long-lasting

Coaching

- Can help with organizational strategies (best results with highly verbal patients)

Medications

STIMULANTS

Short-Acting

Long-Acting

There are only three:

- RITALIN
- ADDERALL
- DEXEDRINE

Stimulants

The originals are all short-acting, have about the same length of action (5-6 hours), and are roughly dose-equivalent:

- RITALIN (methylphenidate)
- ADDERALL (amphetamine salts)
- DEXEDRINE (dextroamphetamine)

Short-acting stimulants require twice-or-three times a day dosing, are thought to have a higher abuse potential (because of peak and crash), but can be a good way to start a patient on medication to determine which one and rough dosage.

Stimulants

Long-Acting Versions

RITALIN (methylphenidate): Ritalin LA, Ritalin SR, Methylin, Methylin ER, Metadate CD, Metadate ER, Concerta, Daytrana, Biphentin, Focalin, Focalin XR, Quillivant XR

ADDERALL (mixed amphetamine salts): Adderall XR, Vyvanse

DEXEDRINE (dextroamphetamine): (XR, Dextrostat)

Stimulants increase the concentration of dopamine in the synapse by binding it to the dopamine transport protein.

Stimulants

Efficacy:

- High rate of response (77% to methylphenidate, plus another 10% responsive to amphetamine salts who were not responsive to methylphenidate) makes them the gold standard of treatment for ADD/ADHD

Effects

- Improve vigilance, reaction time, short-term memory, and learning
- Reduce gross motor activity, impulsiveness, disruptiveness, improve peer relations and mother-child interaction

Side Effects:

- Main side effects due to stimulant effect (insomnia and sleep disruptions) and appetite suppression (weight loss, slowing of growth)
- Can exacerbate tic, has an abuse potential, palpitations, sweating, discomfort, anxiety, some concern about cardiac risk

Stimulants

Recommendations for starting therapy:

- Begin with short-acting (some people are “slow-metabolizers” and will not process drug as expected)
- For a patient with concern about abuse/dependence, may use long-acting (especially Vyvanse) as first-line therapy or a non-stimulant option
- Start with very low dose (5mg) to titrate up to therapeutic dose for that patient (60-80mg daily for adults)
- Watch for: weight loss, exacerbation of anxiety, moodiness, irritability, and inappropriate use (to stay up all night, frequently lost or misplaced prescription/bottle)

Stimulants

Immediacy: can judge effects from a couple days' use

Safety: have been in use since 1930s, do not seem to have adverse long-term effects

Flexibility: Can be safely prescribed daily with long-acting formulations, or can be used in short-term formulations for patient who prefer it, or give breaks (holidays), especially for growing children

Non-Stimulant Medications

Atomoxetine (Strattera):

- Norepinephrine Reuptake Inhibitor. Taken daily with cumulative effects. Has been shown to reduce ADHD behaviors, and has some effect on anxiety.
- To Know: it takes much longer to take effect, can be difficult to discontinue, has not been shown to be as effective as stimulants
- Common side effects: stomachache, nausea, slowing of weight and height increase, sedation, daytime sleepiness, sexual side effects

Non-Stimulant Medications

Wellbutrin:

- An Antidepressant
- Chemically related to stimulants
- Also works by increasing dopamine
- May help with smoking cessation
- Must be taken daily, for several weeks to have full effect

Non-Stimulant Medications

Other Antidepressants:

- Tricyclic Antidepressants, also MAOIs

Clonidine

- Alpha-adrenergic, calming (blood-pressure medication) beware rebound hypertension

Guanfacine

- Also alpha-adrenergic, lowers BP, now has FDA-approval for ADHD, seems to be calming and also improve attention and may have some beneficial effects on tics.

Treating the whole patient

Not everyone is the same

Avoid rigidity about effects, side-effects, and metabolism.

Provide support

Confirmation of appointments, make payment streamlined

Refer for appropriate support

Couples' therapy, coaching, parenting skills, psychotherapy, etc

Assist with accommodations

Schools and workplaces vary in their ability/willingness to accommodate

New Developments

New Warning for Methylphenidate for priapism (although rate less than for Strattera)

Possible New Treatment: Transcutaneous Electrical Stimulation

New York State: Adoption of I-STOP/Prescription Drug Monitoring Program

Questions

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