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Update on the Treatment of ADHD 2017

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Lecture Goals

- Understand ADHD in children and adolescents
- Familiarity with Co morbid conditions associated with ADHD and how they relate to successful treatment
- Accommodations, strategies and medications for success in ADHD



ADHD is a group of neurobehavioral disorders resulting in developmentally inappropriate self-regulation of **attention, impulsivity, and hyperactivity.**

DSM 5 Criteria for Inattention



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- Careless
- Difficulty sustaining attention
- Seems not listen
- Fails to finish things
- Avoids/dislikes tasks requiring sustained mental effort
- Difficulty organizing
- Loses things
- Easily distracted
- Forgetful in daily activities

6 or more often manifested

DSM 5 Criteria for



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Impulsivity/Hyperactivity

- Hyperactivity
 - Squirms and fidgets
 - Unable to stay seated
 - Runs/climbs excessively
 - Can't play/work quietly
 - On the go/"driven by a motor"
 - Talks excessively
- Impulsivity
 - Blurts out answers
 - Difficulty waiting turn
 - Interrupts or intrudes on others

6 or more often manifested

Attention Deficit /



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Hyperactivity Disorder

- Interest Driven, Not Task Driven
- Immature Executive Function
- Easily Distracted
- Excitable / Impulsive
- Poor Frustration Tolerance



Executive Function

The ability to plan, organize, initiate, maintain and complete tasks, with the ability to monitor and shift priorities, as needed

Executive Skills



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- **Initiation** – Getting started
- **Working Memory** – Holding and using information actively
- **Inhibition** – Not react to impulse, stop activity
- **Flexibility/ Shifting** – Move from one task to another
- **Planning** – Anticipation of future events and developing strategies
- **Organizing** – Establish and maintain order
- **Self-Monitoring** – Attention to behavior and output with ability to revise
- **Emotional/Behavioral Control** – Regulate emotional response



Comorbidity in Children

- ODD 50%
- Conduct Disorder 10%
- Language Based LD 30%
- Specific Learning Disorder 25%
- Anxiety/OCD 25%
- Depressive Disorders 35%
- Smoking 3 Xs
- SUD 3 Xs



Young Child with ADHD

- In 2011 the AAP recommended evaluating children 4 years and up if they presented with ADHD symptoms
- Cognitive-Behavioral Counseling for the parents recommended prior to medication (Triple P)
 - positive communication
 - positive reinforcement
 - consistent structure and discipline
- Methylphenidate is recommended as the initial medication, despite FDA indications



Adolescent Issues with ADHD

- ADHD teens have 3-4 times the number of auto accidents, 4-6 times the speeding tickets, and 3 times the ER visits than control group
- Inattention and distraction as the cause
- Dr Daniel Cox has shown protection if stimulant taken properly
- Parents of teens often distracted by crisis with their own parents, leaving supervision of ADHD to the adolescent
- Unplanned pregnancy 4 times as likely
- Smoking and SUD



Clinical Course

- Hyperactivity and impulsivity diminish over time.
- Diminished executive functions persist.
- Accommodations and strategies develop
- 80% of patients maintain some Sx into adulthood
- 55-65% maintain clinically significant Sx
- Heavy burden of losses (career, family, marriage, social)



Treatment of ADHD

ADHD medications are effective, but only ameliorate (not eliminate) symptoms, so treatment of ADHD is much more than just medications!



Treatment Plan

- Proper evaluation
- Demystification
- Behavioral modification
- Environmental modification
- Psychopharmacology



Evaluation for ADHD

- Vanderbilt Parent Rating Scales & Vanderbilt Teacher Rating Scales as Screeners (free online)
- Multiple sources for information
- Proper physical examination with vision, hearing and vital signs
- Expanded differential diagnosis
- Evaluate for the presence of co morbid conditions

Demystification



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- Resources for Families
 - Websites
 - Children and Adults with ADHD (CHADD): www.chadd.org
 - National Resource Center on ADHD: www.help4adhd.org
 - Dr. Patricia Quinn: (website for girls/women with ADHD): www.addvance.com
 - Wrights Law (website with information on educational law): www.wrightslaw.com



Demystification: Education

- Resources for Families

- Books

- *ADHD: What Every Parent Needs to Know* by AAP
 - *Taking Charge of ADHD: The Complete, Authoritative Guide for Parents* by Russell Barkley
 - *The ADHD Book of Lists* by Sandra Rief
 - *Understanding Girls with ADHD* by Patricia Quinn and Kathleen Nadeau
 - *Straight Talk and Psychiatric Medications for Kids* by Tim Wilens, MD
 - *Cory Stories: A Kid's Book About Living with ADHD* by Jeanne Kraus and Whitney Martin
 - *Joey Pigza Swallowed the Key* by Jack Gantos



Environment: Home

- Organized and Not distracting
- Study Aides / Tutoring/ ADHD Coach
- Routine / Time Management
- Encouragement / Challenge
- Involved / Supportive Parents
- Efficient environment
- Consistent medication usage
- Sleep (www.sleepfoundation.org)

Environment: School



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- Efficient and Organized
- Inclusive, Not Exclusive
- Preferential Seating
- Psycho-educational testing (if indicated)
- 504 / IEP / BIP (www.Wrightslaw.com)
- Silent Signal
- No Loss of Recess
- Peer mentor/tutor
- Teacher/student match



Environment: Work

- Efficient Environment/ Avoid Distractions
- Avoid traps (Games, Social Networking)
- Life/ Career Coach
- Organization aides (Apps, Smart Phone)
- Reminders (Sticky Notes)
- Planner/ Lists...Scheduled Checks
- Accountability Partner



Treatment: Medications

- Stimulants
 - Methylphenidate-based medications
 - Amphetamine-based medications
- Non-stimulants
 - Atomoxetine[®]
 - Extended release alpha-2 agonists



Treatment: Medications

- Stimulants:
 - Immediate release:
 - 4 hour duration of effect
 - Diversion potential
 - Intermediate release:
 - 8 to 9 hour duration of effect
 - Extended Release:
 - 10 to 12 hour duration of effect



Treatment: New Medications

- **Aptensio XR[®]:**
 - Extended release methylphenidate (12 hrs)
 - Supplied as 10, 15, 20, 30, 40, 50 and 60 mg capsules
 - Layered beads delivering MPD in an ascending profile in late afternoon



Treatment: New Medications

- **QuilliChew ER[®]:**
 - 30 IR/ 70 extended release of methylphenidate in a chewable formation
 - Available in 20,30 and 40 mg doses
 - 20 and 30 mg doses are scored
 - Can be dosed in 5 mg increments, starting at 10 mg
 - Maximum dose per the FDA is 60 mg/day
 - PKU patients beware due to phenylalanine



Treatment: New Medications

- **Adzenys XR-ODT[®] :**
 - New delivery of the 4 amphetamine salts in Adderall XR[®]
 - Available as 3.1, 6.3, 9.4, 12.5, 15.7 and 18.8 mg strengths, to mimic XR 5, 10, 15, 20, 25 and 30 mg
 - Dissolving micro particles carrying the ionized salts.



Treatment: New Medications

- **Dyanavel XR[®]:**
 - 2.5 mg amphetamine base/ml
 - Approved for ages 6 to 17 years
 - FDA recommends 2.5 mg to maximum of 20 mg/day
 - Shake bottle
 - Urinary pH affects blood levels



Treatment: Medications

- **Stimulants**
 - Side Effects: decreased appetite, weight loss, headache, stomachache (give after food!), emotion/mood changes, rebound hyperactivity, sleep difficulties, emergence of tics
 - Rare Side Effects: psychotic episode, sudden cardiac death?
 - “Risks/benefits discussed, including psychiatric and cardiac risks”



Treatment: Medications

- General Principles
 - Some patients need dose of immediate release medication in the afternoon to help with evening focus, rebound hyperactivity, and/or evening dysphoria
 - Do not use Rx as a test for ADHD; do full evaluation on all patients
 - Treat mood disorder first, intrinsic anxiety second, and then ADHD
 - Treat ADHD first when dealing with mild anxiety



Pearls for Managing ADHD

- Use specific target symptoms and monitor efficacy
- Start low and titrate dose until maximum improvement or side effect(SE)
- Change to different class of stimulant if SE persist
- Middle school onward should be treated 365 days per year to protect from substance use/abuse, auto injuries, unplanned pregnancy, etc



Pearls for Managing ADHD

- Monitor growth and vital signs with each visit
- Re-evaluate diagnosis and continued need for therapy
- Watch for emergence of co-morbid disabilities
- Re-examine patient q 3 months
- Discourage drug holidays
- Monitor flow of Rx (freq of use) and be aware of risks for diversion.
 - Immediate release>>delayed release

Suggested Reading



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- Adler, L. (2006). **Scattered Minds**. GP Putnams, NY
- Barkley, R. **ADHD Report**. Guilford Press
- Dawson, P et al. (2009). **Smart but Scattered**. Guildford Press
- Dulcan, M. (2003). **Concise Guide to Child and Adolescent Psychiatry**. 3rd ed. American Psychiatric Press. DC
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