



Adult ADHD

Learning Objectives

1. Discuss diagnosing ADHD in adulthood
2. Review treatment options for ADHD in adulthood
3. Discuss treating the adult ADHD patient who is also an addict
4. List non-pharmacological interventions for adult ADHD

Faculty

Shirah Vollmer, MD

Clinical Professor of Psychiatry
David Geffen School of Medicine at UCLA
Los Angeles, California

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The Old and The Restless: Adult ADHD

Shirah Vollmer MD
Clinical Professor, David Geffen UCLA
School of Medicine
310-824-4912
svollmer@vollmers.us

Outline

- Diagnostic Criteria
- Epidemiology
- Etiology
- Adult Characteristics
- Evaluation
- Differential Diagnosis
- Treatment
- Summary
- Review Questions

Diagnosis Begins... Utah Criteria-1993

DSM

- DSM IV-1994-NO CRITERIA FOR ADULTS
- DSM 5-2013-included in the section on **Neurodevelopmental Disorders**, and not disruptive behavior disorders
- Criteria include adult manifestations-such as difficulty paying bills
- Onset before age 12 and not age 7, as in DSM IV
- For individuals 17 and above only 5 symptoms are needed instead of the 6-9 for those younger
- ADD went away in 1994 with DSM IV

DSM 5

- Three Presentations vs. Subtypes (DSM IV)
 - Combined Presentation
 - Predominantly Inattentive
 - Predominantly Hyperactive-Impulsive

Diagnostic Criteria and Symptoms

- Deficits in sustained attention remain
- Appointments are forgotten
- Impulsivity---socially inappropriate behavior-blurting out thoughts which are rude or insulting
- Frustration over the inability to be organized
- Inability to prioritize
- Central feature of ADHD is disinhibition

Adult Characteristics

- Hyperactivity-inability to relax
- Attention deficits-forgetfulness, losing things
- ABLE to concentrate on things they like
- Affective lability-mood shifts lasts for hours, not days

Childhood Symptoms Versus Adult

Hyperactivity

- Can't sit still, always on the go
- Climbs or runs at inappropriate times

Restlessness

- Can't stay focused on one thing
- Is fidgety or impatient

Physical Impulsivity

- Does things that result in injuries

Verbal Impulsivity

- Says the "wrong thing" or speaks out of turn

Epidemiology

- Epidemiologic studies of adult ADHD have estimated the current prevalence to be:
- 4.4 percent among 18 to 44 year olds in US, National Comorbidity Survey Replication(1)
- 3-10% of children
- M: F-3:1 childhood, 2:1 adulthood
- Girls are more impaired cognitively and more often missed
- 1/3-2/3 persist into adulthood

1. Kessler, RC, et al. Am. J. of Psychiatry, 2006;163:716-723

Neurochemical studies

- DA underactivity theory
- Shaywitz-rat pups depleted DA-ADHD
- NE and attention

The Frontal Lobes

- OFC-impulsive and aggressive behavior
- CBF and glucose utilization are different in ADHD vs. normal children
- Zametkin-1990-decreased glucose metabolism in adult frontal lobes of ADHD adults
- ?antecedents or complications of ADHD

The Frontal Lobes II

- Impairments of frontostriatal brain regions
- Poor inhibitory control
- Similarity between ADHD individuals and those with frontal lobe lesions (Mattes, 1980)
- MRI of ADHD children-reduced volumetric measures of the prefrontal cortex (Filipek et al 1997)
- Persistent ADHD represents a continuation of inhibitory control deficits from childhood (Schultz, 2005)

Why do PCPs miss the dx?

- Confusion about ADHD persisting into adulthood
- Symptoms in adult are less disruptive than they are in children
- PCP receive little training in the diagnosis of adult ADHD

Missing The Diagnosis

- Lack of guidelines for primary care providers
- Lack of objectively verifiable tests
- Diagnostic criteria structured more toward childhood diagnoses
- High rate of media attention predisposing adults toward self diagnoses
- Common comorbidities
- Concern of schedule II drug abuse

ADHD evaluation

- Most patients are self-referred (Faroane, 2004)
- Mental status examination
- Developmental hx
- Past and present triad-inattention, hyperactivity, impulsivity
- Impairment-school, work, family, peers

ADHD Evaluation II

- Family hx-ADHD, LC, tic disorders, PTSD, childhood abuse
- Interview SO and/or parent
- Neuro exam
- School hx
- Lab tests-thyroid
- Consider educational testing

ADHD Evaluation III

- Psych hx-dx and rx
- Medical hx-thyroid, seizures, head trauma
- Medications-antihistamines, theophylline, steroids, sympathomimetics
- Rating scales

ADHD Evaluation IV

- Interpersonal problems
- Selective inattention, related to pleasure in the task
- Impulsivity-immature, helpless, remorseful, talks excessively, impatient
- Problems initiating tasks

ADHD Evaluation V

- Disorganized
- Difficulties planning, organizing and executing activities
- Inability to sustain task-seen as irresponsible, unreliable and inconsiderate

Executive Malfunction

- Disturbance in impulse control-response inhibition
- Planning problems
- Working memory
- Set shifting

ADHD Evaluation VI

- Cycle of recrimination
- H/o impairment at work and at home
- Divorce, interpersonal conflicts, lower SES, job changes
- Some feel shame
- MVA

Adults with ADHD and MVA

- Young adults with ADHD have more MVA
- 6 week pilot study, RCT using Adderall XR 20-40 mg
- Driving simulator
- Situation awareness, hazard perception, risk assessment, decision making
- Driving performance was significantly improved with Adderall XR compared to placebo

Differential Dx and Comorbidity

- Depression, anxiety, OCD
- Agitated depression
- Anxiety makes ADHD harder to rx
- Cyclothymia vs affective instability

Differential Dx and Comorbidity

- Bipolar D/O-impulsivity in ADHD is thoughtless, compared to driven quality of manic episodes
- Substance abuse is often comorbid with ADHD-maybe stimulant rx in childhood decreases this????

Medical Conditions that Mimic ADHD

- Hyperthyroidism
- petit mal and partial complex seizures
- hearing deficits
- hepatic disease
- lead toxicity
- sleep apnea
- drug interactions

Differential Dx and Comorbidity

- Antisocial personality disorder 18-45% childhood ADHD
- LD-62 % ADHD adults have reading problems
- Tourettes's syndrome

Treatment

- Risk/benefit ratio
- Hyperactivity-internal restlessness decreases
- Inattention-better concentration-so is happy
- Mood lability-mood is level
- Stimulants are no cure
- H/o substance abuse is not a contraindication to rx

Decision to Rx

- Impairment in functioning
- Troubled relationships, underachievement
- Need to devote time and energy to medication monitoring
- Failure to respond to nonpharmacological rx

The Decision to Rx-II

- Temper-increase threshold to anger
- Disorganization-improves strategies
- Stress sensitivity-feel less hassled
- Less impulsive-more thoughtful
- Changes may only be seen by so
- Treatment may be life-changing
- Huge human toll when ADHD is missed



- ✦ **Each day, make a list of what you need to do. Plan the best order for doing each task. Then make a schedule for doing them. Use a calendar or daily planner to keep yourself on track.**
- ✦ **Work in a quiet area. Do one thing at a time. Give yourself short breaks.**

Productivity Apps-Anecdotal

Evernote (FREE)

Save your ideas, things you like, things you hear and things you see. This application works with nearly every computer, phone and mobile device available today. Evernote makes remembering easy!

Google Calendar (for Android—Updated August 1, 2013) (FREE)

The Calendar app displays events from each of your Google Accounts that synchronizes with your Android device. You can also:

- Create, edit and delete events
- View all your calendars at the same time, including non-Google calendars
- Quickly email all event guests from a notification with a customizable message.

Things (for Mac, iPhone and iPad) (\$9.99)

This is a task-management **100%** that's easy to use, yet has all the power when you need it. Projects, tags, repeat tasks – will all be at your fingertips. No matter what device you're on, **Things Cloud** keeps your to-dos updated across them all - automatically.

ADHD Organizer App for iPhone (\$1.99)

by Creative App Development, Ltd

ADHD Organizer is the first app of its kind.

It allows you to:

- Keep yourself organized
- Keep track of progress in reaching your goals
- Realize your strengths
- Realize repeated errors

This app can help you lead a better life with ADD or ADHD.

<http://www.focusandread.com/blog/post/3563166>

Pharmacological Treatment

- Sparse rx data in adults
- 10 double blind placebo controlled studies
- Dramatic short term therapeutic effects
- Multimodal approach is advised
- Rx comorbid conditions, esp anxiety
- Establish target sx

Monitoring Rx

- Vocational functioning
- Daily living skills-eg forgetting keys
- Emotional adjustment
- Family interactions
- Long term supportive rx
- Assess for concurrent drug/ETOH abuse
- Discussion about safe storage of medication

Pharmacotherapy

- Behavioral plan BEFORE writing a prescriptions
- Methylphenidate and Amphetamine
- Bradley-1937-dramatic effect of benzedrine
- Numerous well-designed placebo controlled acute drug studies
- Use has doubled every 4-7 years since 1971-CONTROVERSIAL!

Setting Expectations

- Methylphenidate-5 double blind studies in adults-55% positive responders
- Aimless restlessness becomes more goal directed
- Sustained attention improves
- Inhibitory control improves

Methylphenidate

- 0.1-1.0 mg/kg—20-80 mg/day
- Decreased appetite
- Sleep problems
- Increased HR
- Bp increased-usually minor

Methylphenidate

- Short half life-roller coaster feeling
- Medication holidays for ongoing assessment
- Potential for abuse vs. poor impulse control leading to substance abuse
- Psychotic reactions in high doses

Methylphenidate

- Drug interactions-MAOI-HTN
- Warfarin-monitor INR
- Lowers seizure threshold
- Pressor agents-increase pressor effects

Forms of Methylphenidate

- Focalin-d-isomer of ritalin, 2.5 mg, 5.0 mg, 10.0 mg
- Concerta-18 mg, 27 mg, 36 mg, 54 mg
- Metadate ER-10 mg, 20 mg (released every 4 hours) Metadate CD 20 mg-6 mg initially and 14 mg over time
- Ritalin LA-10 mg, 20 mg, 30 mg, 40 mg- 8 hours

Adderall

- D-amphetamine and l-amphetamine-may have smoother effects due to different absorption rates
- Adderall XR is a 12 hour pill
- Capsule allows for dosing flexibility
- 5mg, 10 mg, 15 mg, 20 mg, 25 mg, 30 mg
- Recently approved for adult ADHD

**Shire and New River
Pharmaceuticals Announce
FDA Approval of the First and
Only Stimulant Prodrug
VYVANSE™ (lisdexamfetamine
dimesylate) as a Novel
Treatment for ADHD**

23 Feb 2007 -

VYVANSE is a prodrug that is therapeutically inactive until metabolized in the body. In clinical studies designed to measure duration of effect, VYVANSE provided significant efficacy compared to placebo for a full treatment day, up through and including 6:00 pm

The capsules are available in 30-, 50-, and 70-mg strengths for once-daily dosing.

Strattera (atomoxetine)

- ADHD, for >6 years old
- Only non-stimulant approved to rx ADHD
- NOT a controlled substance
- SNRI
- Drowsiness, nausea, vomiting, ??? Liver problems
- Takes 2-4 weeks
- 10 mg-80 mg/day

Other Agents-Wellbutrin

- Wellbutrin-Barrickman 1999 double blind crossover study Wellbutrin and methylphenidate-both effective-but Wellbutrin is effective after week 4
- Mean dose 360 mg/day
- 52 % vs. 11%

Cylert-Pemoline

- Potential liver toxicity ? 2%-13 reported cases-kids
- NOT a 1st line drug therapy for ADHD
- Low abuse potential-regular prescription
- 37.5 mg qd-initial dose, up to 75 mg/day
- Threshold stimulant, not a ramp stimulant
- 38 % efficacy in adults (Wilens, 1999)

Provigil (modafinil)

- Approved for narcolepsy and excessive daytime sleepiness
- Wake promoting agent
- Headaches, nausea, nervousness, insomnia
- 100 mg-400 mg/day
- (Turner et al, Biol Psych
- 2004)

Aricept

- Aricept (donepezil), cholinesterase inhibitor-helps with executive functioning problems
- 2.5 mg/day, max dose 10 mg/day

Nicotine-ABT-418

- Adolescents w/ ADHD smoke 2x as much as their counterparts
- Transdermal patch has been studied in adolescents with ADHD
- Nicotine improved inhibition
- Mecamylamine-1950's active in the brain's nicotinic receptors
- Nicotinic activation enhances DA transmission

Other Agents

- SSRI's good for comorbid anxiety and depression
- Inderal-promising for temper outbursts, excitability, irritability
- Clonidine-used in children for their irritability-no good studies in adults

Psychiatrist Referral

- Dangerous or disturbed behavior
- Comorbidities
- Failure to respond to treatment plan
- Wanting a second opinion

Summary

- DSM5 added Adult ADHD diagnosis
- 4.4 % population have adult ADHD-common d/o
- Inattention, impulsivity, hyperactivity
- Decreased DA
- impaired frontostriatal brain regions-lack of inhibition
- No laboratory marker-clinical diagnosis
- Rx may be life-changing
- Huge human toll when ADHD is missed
- Stimulants are the drug of choice

Future Directions

- Etiology of ADHD
- Does early rx effect the DA system?
- Long term studies are needed-this is a chronic condition
- Scientific Study of Productivity Apps