ADHD (Attention Deficit Hyperactivity Disorder): DSM-V Update and Clinical Strategies

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Disclosures

<table>
<thead>
<tr>
<th>Source</th>
<th>Honorarium for this meeting</th>
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<tr>
<td>Arizona Osteopathic Medical Association</td>
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Off-label use of medications will be discussed.
Learning Objectives

1. Appreciate clinical differences in diagnosing ADHD (Attention Deficit Hyperactivity Disorder) using the DSM V vs. DSM IV-TR.
2. Identify two personal and/or societal consequences of untreated ADHD.
3. Describe clinical assessment strategies and evidence-based treatment of ADHD.
4. Develop treatment taking into consideration of co-morbid mood and anxiety disorders.

What is ADHD?

- Neurodevelopmental Disorder
  - Syndrome
  - Pediatric onset
  - Affects brain function
  - Clinical Effects on:
    - Emotion
    - Cognition
    - Behavior
Diagnostic Criteria

ADHD Criteria

- DSM-V Classification
  - Inattention (A)
  - Impulsive (I)
  - Hyperactive (H)

- Subtypes
  - Predominantly A
  - Predominantly H/I
  - Combined type

- Onset before age 12
- Several symptoms present in two or more settings
- Symptoms impact quality of social, academic or occupational function
Symptoms of Inattention

- Careless mistakes due to inattention
- Limited attention span
- Does not listen
- Does not finish work
- Cannot organize tasks
- Avoids sustained mental effort
- Loses things necessary for work
- Distractible
- Forgetful

Symptoms of Hyperactivity/Impulsivity

- Restless, fidgets
- Running/climbing
- Excess talking
- Cannot remain seated
- Cannot play quietly
- Motor-driven
- Blufts out
- Cannot wait turn
- Interrupts conversations
DSM V Changes

- 18 ADHD symptoms unchanged from DSM IV-TR
- Only ≤5 inattentive/≤5 hyper-impulsive symptoms required if older than 17 years
- Symptom (not impairment) prior to age 12yrs
- No exclusion for Autism Spectrum Disorder

Background
ADHD Facts

- 5-7% of the total school-age population is affected
- 30-40 million children have ADHD
- M:F 6:1
- Females with symptoms are more difficult to diagnosis on presentation
- 60-70% will have residual symptoms as adults

Pediatric ADHD Comorbidity

ALL values p< 0.05

***Limited data
Adult ADHD Past Year Comorbidity

Mood Disorder  Anxiety Disorder  Substance Use Disorder  Intermittent Exp Disorder

ALL values p< 0.05

Impairment: Effects on Motor Vehicle Driving

Drivers with ADHD tended to have more severe accidents than controls*

- Hit and Run
- Totaled Vehicle
- License Suspended

*Percentage of occurrences

Barlow DH, Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment. 1996.
Impact of Core and Broad Symptoms on Patients Diagnosed With ADHD

- Repeat a grade
- Teen pregnancy
- STD
- Substance abuse
- Intentional injury
- Incarcerated
- Fired from job
- Attempt suicide

Rate of Occurrence (%)

### Early Developmental Risk

<table>
<thead>
<tr>
<th>Prenatal Risk Factor</th>
<th>Perinatal Risk Factor</th>
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<tbody>
<tr>
<td>Maternal NICOTENE use</td>
<td>LEAD</td>
</tr>
<tr>
<td>Maternal ALCOHOL use</td>
<td>Increased maternal age</td>
</tr>
<tr>
<td>Intrauterine growth delay</td>
<td>Toxemia/preeclampsia</td>
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<tr>
<td>Organophosphate pesticides</td>
<td>Birth &lt; 32 weeks or &gt;42 weeks</td>
</tr>
<tr>
<td>Intrauterine cocaine exposure</td>
<td>Neonatal anoxia, seizures, brain hemorrhage</td>
</tr>
<tr>
<td>Intrauterine heroin exposure</td>
<td>Fetal distress</td>
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### Estimated Heritability

- **DM II**: 0.8
- **IQ**: 0.7
- **Height**: 0.6
- **ADHD**: 0.9
- **Autism Spectrum**: 1.0

Heritability estimate percent %
Brain Imaging Findings

- Smaller total volume, especially frontal regions
- Decreased glucose metabolism-premotor and superior prefrontal regions
- Developmental delay in cortical maturation
- Dysregulated activation in fronto-parietal, visual, dorsal attention and default networks

Environmental Risk

- Positive findings for serum lead
- No associations with dietary sugar or vitamin/micronutrient deficits
- Very small effect of artificial food additives in some genotypes
Assessment Strategies

Assessment

- Record review/Rating Scales
- Medical Assessment
- Diagnostic Interview
- Neuropsychological testing

*for assessment of common comorbidities*
Pediatric Rating Scales

- Vanderbilt Rating Scales, 1998
- Swanson Nolan and Pelham (SNAP-IV) rating scale, 2001
- ADHD Rating Scales-IV (ADHD-RS)
- Brown Attention Deficit Disorder Scales
- Conners 3rd Edition Rating Scales

Adult Rating Scales

- World Health Organization Adult ADHD Self-report scale (ASRS)
- Barkley Adult ADHD Rating Scale-IV (BAARS-IV)
- Conners’Adult ADHD Rating Scale (CAARS)
- Brown Attention Deficit Disorder Scales (BADDS)
Collateral Information

- Past Records
  - School records
  - Medical records
  - Parent reports
- Employment Records/Reports
- Partner/teacher/Spouse reports
Social Assessment Pearls

- Drug/Nicotine/Alcohol use
- Driving record
- Seatbelt use
- Sexual activity
- Contraception

Medical Assessment Pearls

- Vitals
- ROS/Past medical history
  - Chronic Illness/Somatic symptoms
  - Head trauma/seizures/LOC/syncope/palpitations
  - OSA symptoms/Seasonal allergy symptoms
  - Medications
Cardiology Assessment


- No need for a cardiology referral without indicated risk factors
  - Past medical cardiovascular condition
  - Exercise intolerance-fainting, palpitations, SOB
  - Family history of cardiac abnormality/arrhythmia

Neuropsych Testing

- IQ and academic functioning tests assess Intellectual Deficit Disorder (IDD) and Learning Disorder (LD), but do not predict ADHD
- Executive functioning (EF) tests predict deficits, but do not predict ADHD
- May predict greater frequency of initiation of special educational services and parent behavioral management training
Treatment

Non-med treatment strategies

- Psychoeducation
- Family Focused
- School Focused
- Patient Focused
Evidence-based Psychosocial Treatments

- Psychoeducation
- Social Skills training/Interpersonal therapy
- Organizational training
- Cognitive Behavioral therapy

Organizational Training

Organizational Skills Training for Children with ADHD: An Empirically Supported Treatment
Medication Treatments

- Stimulant trials
- Atomoxetine/Alpha Agonists
- Combinations of above
- Buproprion
- TCA

Stimulants

**Methylphenidate**
- Concerta (OROS)
- Metadate CD
- Metadate ER
- Ritalin LA
- Focalin/XR
- Daytrana patch
- Quillivant XR

**Dextroamphetamine/Mixed amphetamine Salts**
- Adderall XR
- Dexedrine ER
- Evekeo
- Vyvanse (lisdexamfetamine)
**Stimulant Updates**

- Evekeo-50% dextroamphetamine / 50% levoamphetamine- 5mg, 10mg tabs
- Concerta- use Actavis (formally known as Watson) pharmaceuticals only.

**Stimulant Side Effects**

- Black box warning: CARDIAC EVENT
- Sleep difficulties
- Weight loss/decrease appetite
- GI side effects: constipation, nausea, distress
- Headaches
- Psychosis
- Affect Blunting
- Mood lability/rebound
Alpha 2 Noradrenergic Agonist

- Clonidine (Catapres)/Clonidine ER (Kapvay)
  - Comes in p.o. and patch form
  - Dose range 0.025mg-0.4mg day
  - Sedating

- Guanfacine (Tenex)/Guanfacine ER (Intuniv)
  - Dose range 0.25mg-6mg/day
  - Less sedating

Antidepressants

- Atomoxetine (Strattera)
- Bupropion (Wellbutrin)
- Desipramine
- Imipramine

Side effects
- Black box warning-increased suicidal thinking
- GI distress/agitation
- Cardiac toxicity
Melatonin

- Sleep onset advanced
- Total sleep increased
- No change in cognition or behavior
- 3-10mg qhs

Comorbid Mood and Anxiety Disorders
ADHD and Anxiety Disorders

ADHD + Attention Deficit Hyperactivity Disorder
SSRI = Selective serotonin reuptake inhibitor

ADHD and Major Depressive Disorder
ADHD and Bipolar Disorder

- Multiple overlapping symptoms
- Differentiating Course
- Differentiating Symptoms
  - Elevated mood, Grandiosity, Decreased need for sleep, Hypersexuality (child)
- Genetics
  - Check for family history
- If Bipolar Present, Stabilize Mood First

Summary

- DSM V updates: onset before 12 years of age rather than 7 years. Comorbid PDD may be diagnosed.
- Assessment: Include collateral, rule out cardiovascular risk, and include collateral info.
- Treatment: Psychosocial interventions growing, Comorbidities should be addressed
- When in doubt, refer to psychiatry.
Contact Information

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