ADHD: Differential Diagnosis and Treatment Strategies Across the Life Course

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Outline

• Defining ADHD
• Epidemiology and Course
• Comorbidities
• Etiology
• Diagnostic assessment
• Treatment options
Mental Disorders With Possible Onset in Childhood

- Schizophrenia
- Disruptive behavior disorders, including ADHD
- Mood disorders, including bipolar disorder (BD)
- Autism and other developmental disorders
- Tic and related disorders
- Anxiety disorders
- Eating disorders

Extent of Mental Disorders in US Children/Adolescents

ADHD = attention deficit/hyperactivity disorder; PDD = Pervasive developmental disorders

Sources: Office of the Surgeon General, and NIH (1999).
DSM-IV Criteria for ADHD

A) For at least six months, **often** exhibited 6 or more symptoms of inattention:

- fails to give close attention, makes careless mistakes
  - difficulty sustaining attention
  - does not seem to listen when spoken to directly
  - fails to follow thru on instructions, finish schoolwork or chores
  - difficulty organizing tasks and activities
  - avoids/dislikes tasks requiring sustained mental effort
  - loses things necessary for activities (i.e. toys, assignments)
- easily distracted
- forgetful in daily activities
B) For at least six months, **often** exhibited 6 or more symptoms of hyperactivity/impulsivity:

» fidgets with hands or feet or squirms in seat
» leaves seat in classroom or other situations where it is inappropriate
» runs about or climbs excessively
» difficulty playing quietly
» “is on the go” or acts as if “driven by a motor”
» talks excessively
» blurts out answers before questions have been completed
» difficulty awaiting turn
» interrupts or intrudes on others (e.g. butts into conversations)
DSM-IV-TR Criteria for ADHD

• At least 6 symptoms of inattention or at least 6 symptoms of impulsivity-hyperactivity
• Symptoms present at least 6 months, maladaptive, inconsistent with developmental level
• Some symptoms causing impairment present before age 7 years
• Some impairment from symptoms in at least 2 settings
• Not better accounted for by another mental disorder
Methods: Prevalence of ADHD Medication Treatment Based on Data from JCADHD Study

- 7339 children from 17 schools (grades 1-5) in semi-rural NC county were screened over two years
- 6101 parents (83 % response rate) provided medication data
- **Exclusions:** self-contained classes - autism, mental handicap
- **Consent:** parents were asked, “Has your child ever been diagnosed with ADHD by a doctor or psychologist?”
- If yes, “are they currently taking medication to treat ADHD?”
Prevalence of ADHD based on data from JCADHD Study

» 608/6101 (10 %) children were previously diagnosed with ADHD by a doctor or psychologist

» 434/6099 (7.1 %) were currently taking medication to treat ADHD

» 402/434 (93%) of children taking ADHD medication were taking stimulants
ADHD – CORE SYMPTOMS OVER TIME

PRESCHOOL
• Temper tantrums
• Argumentative beh.
• Aggressive behavior
• Fearless behavior
• Noncompliance
• Sleep disturbance

ELEMENTARY SCHOOL AGED
• Classic ADHD (per DSM-IV)
ADHD - Core Symptoms (Continued)

ADOLESCENTS

- Internal sense of restlessness rather than gross motor activity
- Poorly organized approaches to work
- Poor follow through on tasks
- Continuation of risky behaviors
ADHD Course Adolescence

60%-85% of children with ADHD meet ADHD criteria in adolescence
Less gross hyperactivity with development
ADHD Course Adulthood

Hard to measure because of criteria, informant, comorbidity, instruments

19-44 yr olds -4.4% (2%-8%)

40% continue to meet criteria at 18-20 years old;

90% have at least 5 symptoms and a GAF score of less than 60
ADHD & GIRLS

- Often present without hyperactivity
- Predominately inattentive is more prevalent in girls
- Have fewer conduct problems
- More likely to exhibit depression and anxiety
ADHD Course

At risk for:

Academic under achievement
Injuries
accidents
substance abuse
teen pregnancies
births out of wedlock
marriage and employment problems
antisocial and criminal behavior
Med. Reduces Substance Abuse (SA) in Adults with ADHD

- Incidence of SA
- unmedicated ADHD patients at higher risk for SA
- no sig diff. between medicated ADHD & controls

Biederman, Pediatrics. 1999;104:e20-e25
ADHD & Smoking

- ADHD is a significant predictor of early smoking in adolescence

  - *Milberger et al. JAACAP 1997:36:37-44*
  - N=237 boys aged 6-17, followed for 4yr
  - At end of 4 year, 19% of ADHD boys were smoking compared with 10% of controls
Etiology of ADHD

- Deficits in Executive Function:
  - Response inhibition
  - Vigilance
  - Working memory
  - Planning
Comorbidities and ADHD

• 54 – 84% of children and adolescents with ADHD meet criteria for oppositional defiant disorder
• Significant portion go on to conduct disorder
• 15 – 20% start smoking or develop SA disorder
• 25 – 35% have learning or language problems
• Up to 1/3 have anxiety disorders
• Controversy about prevalence of mood disorders in patients with ADHD
Etiology of ADHD - Genetics

- 76% Heritability
- Markers add chromosome 4, 5, 6, 8, 11, 16, and 17
- Genes - dopamine and serotonin
- D4 Receptor gene, 7 repeat variant - associated with better outcomes, less persistent ADHD symptomatology, higher IQs
ADHD Brain Changes

- Reduced cortical white and grey matter volume
- Functional imaging-differences in brain activation in caudate, frontal lobes and anterior cingulate
Non Genetic Causes of ADHD

- Perinatal stress and low birth weight
- Traumatic brain injury
- Maternal smoking
- Severe early deprivation/maltreatment
- Alcohol
Common Symptoms Observed Across Different Diagnoses

**DIAGNOSIS**
- Disruptive Behavior Disorder
- ADHD
- Conduct Disorder
- Mental Retardation
- Bipolar Disorder
- Autism
- Schizophrenia
- Anxiety

**SYMPTOMS**
- Aggression
- Agitation
- Hyperactivity
- Impulsivity
- Hallucinations
- Delusions
- Mania
- Self-Injurious Behavior
- Mood Instability
Differential Diagnosis

- Anxiety Disorders
- Mood Disorders
- Psychotic Disorders
- Learning Disabilities
- Developmental Disorders
- Substance Use Disorders
- Medical Illnesses
- Sleep disorder
- Sensory Impairments
- Speech and Language Disorders
Physical Causes of Poor Attention

- Impaired vision or hearing
- Seizures
- Sequelae of head trauma
- Acute or chronic medical illness
- Poor nutrition
- Insufficient sleep
- Side effects of medication
Assessment

- Child, parent and family interview
- Developmental, medical, social, past psychiatric, & family psychiatric histories
- Rule out medical causes
- Rule out/in comorbid diagnoses
- Obtain collateral information from school, others
- Consider Psy, OT, Sp and Lang Evals
Assessment

- Always screen for signs and symptoms
- Multiple informants
- If positive ask about ADHD symptoms - age of onset, duration, severity, frequency
- Chronic course?
- Present in 2 or more settings?
- Comorbid problems?
- Family history
- Individual interview
Physical Evaluation

- Physical exam (vital signs, wt., ht.)
- Neurological exam
- Vision and hearing
- Lab Work if indicated (Pb, CBC, TSH, etc)
Assessment (continued)

• Parents are often more reliable with regard to report of externalizing symptoms

• Children are more reliable with regard to report of internalizing symptoms

• Teachers are generally very helpful
Common Behavioral Rating Scales

- ADHD Rating Scale
- Brown ADD Rating Scale for Children Adolescents and Adults
- Child behavior checklist
- Connors (adult and child)
- SNAP-4 and SKAMP
- Vanderbilt
Treatment of ADHD

» Education of parents and child
» School interventions
» Medication
» Ancillary treatments

» Psychosocial interventions
» Dietary treatment
» Other Treatments
ADHD - PSYCHOSOCIAL RX.

- Parent behavior modification training
- Parent support group
- Family psychotherapy
- Social skills group
- Individual therapy
- Summer day camp
- Coaching
Treatment Modalities for ADHD

MEDICATIONS:

- STIMULANTS
- ATOMOXETINE
- CLONIDINE & GUANFACINE
- TRICYCLIC ANTIDEPRESSANTS
- BUPROPRION
- VENLAFAXINE
- DOPAMINE ANTAGONISTS—
  antipsychotics (poor results)
ETHICAL ISSUES

- Risks of medication
- Risks of untreated disorder
- Expected benefits of meds. relative to other treatments
- Off-label use
- Parental use of meds to control or eliminate troublesome behavior instead of investigating the environmental role
- Risk of labeling a child (military/insurance)
Stimulants are first line medication for ADHD

- In use since 1930’s
- Most side effects are mild and easily reversed
- 70% of children with ADHD respond to first stimulant trial
- 90% respond by second trial
To Schedule Child and Adolescent Patients

- Call 919-966-5217
- Generally takes 4-8 weeks for an appointment after intake packet is returned
- Seen for consultation with recommendations, sent back to treating professional/physician
- Ongoing treatment quite limited