UNC-CH School of Social Work

Clinical Lecture Series

ADHD: Differential Diagnosis and Treatment Strategies Across the Life Course

February 22, 2010

Jack Naftel, M.D.
Professor
The University of North Carolina
Department of Psychiatry

Outline

- Defining ADHD
- Epidemiology and Course
- Comorbidites
- Etiology
- Diagnostic assessment
- Treatment options

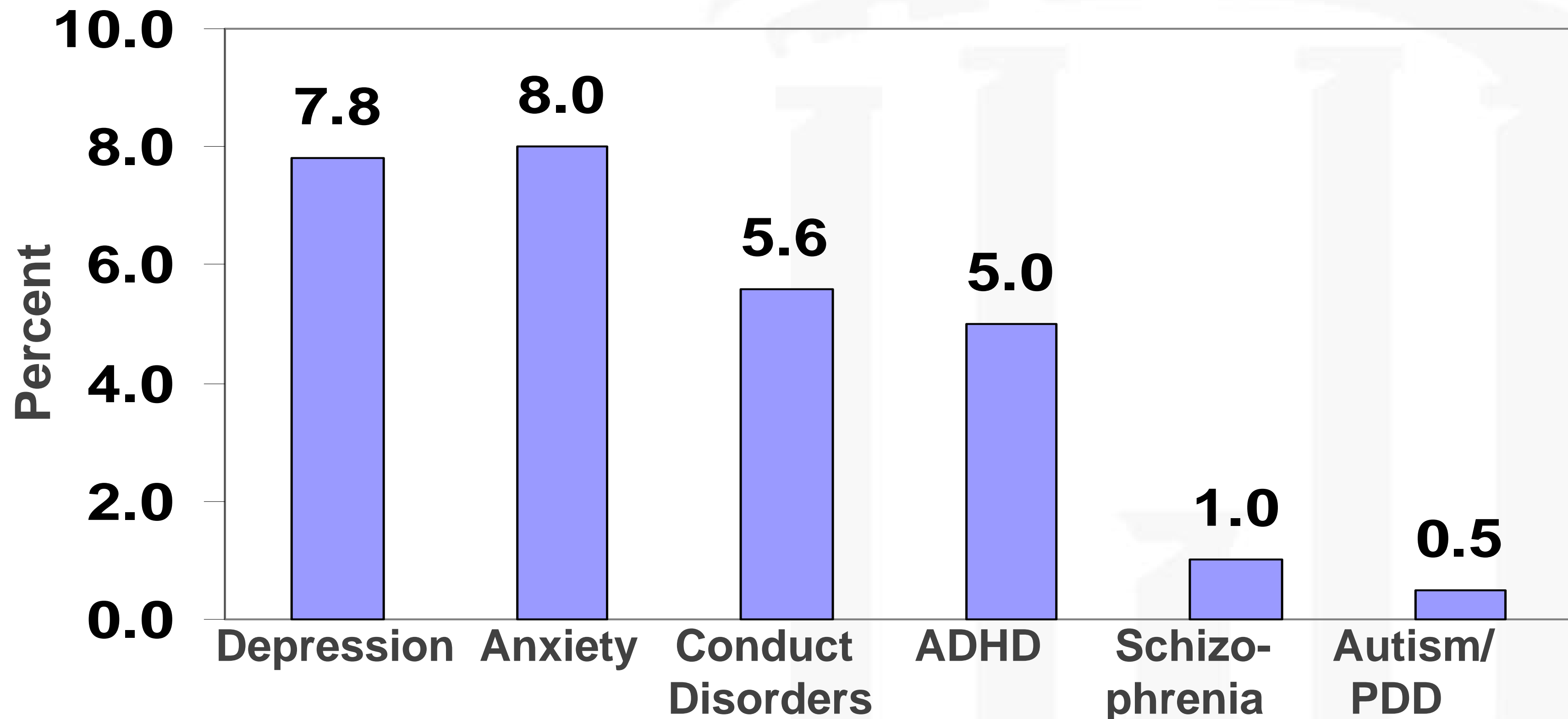
Mental Disorders With Possible Onset in Childhood

- 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

Treatment of children with mental disorders. Available at: www.nimh.nih.gov/publicat/childqa.cfm. Accessed 4/02.

UNC SCHOOL OF MEDICINE

Extent of Mental Disorders in US Children/Adolescents



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

Sources: Office of the Surgeon General, and NIHM (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

DSM-IV Criteria for ADHD Continued:

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

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

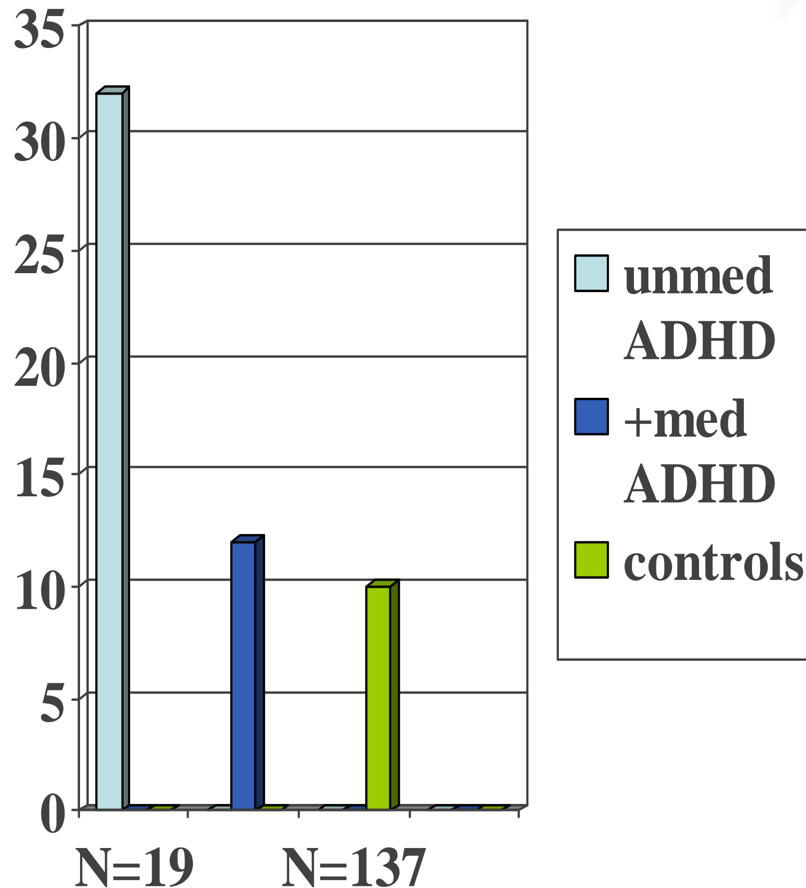
births out of wedlock

marriage and employment problems

antisocial and criminal behavior

UNC SCHOOL OF MEDICINE

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 or 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**