ADHD: A Life Script from Conception to Adulthood

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ATTENTION DEFICIT HYPERACTIVITY DISORDER
A life script from conception to adulthood.

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Attention Deficit Hyperactivity Disorder – A Life Script from Conception to Adulthood

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Speaker Disclosure: Dr. Montagnese has no actual or potential conflicts of interest in relation to this program.

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Attention Deficit Hyperactivity Disorder – A Life Script from Conception to Adulthood

Accreditation:
Pharmacists: 798-000-09-029-L01-P
Pharmacy Technicians: 798-000-09-029-L01-T
Nurses: N102209-440-L01

CE Credits: 1.0 Credit hour or 0.1 CEU for pharmacists/technicians/nurses

Target Audience: Nurses, Pharmacists & Technicians

Program Overview: Pharmacists have consistent contact with patients over a long period of time, making them an excellent and accessible resource for information on ADHD. Moreover, pharmacists are trusted healthcare providers who interact with a large, diverse patient population. One-on-one, patient-to-pharmacist interaction is routine, and advice can often be obtained without direct or additional cost to the patient. Pharmacist and patient relationships are often much more conducive to conversation and have greater opportunities for discussion in comparison to a busy physician’s office. Pharmacists can play a key role counseling ADHD sufferers.

Objectives:
- Define attention-deficit/hyperactivity disorder (ADHD) and its subtypes.
- Identify the clinical applications and limitations of medications for ADHD.

Expiration Date: 05/31/2012

Fidgety Phil

Fidgety Phil
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**Dennis the Menace**

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**Calvin**

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**My Kids**

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**History of ADHD**

- Minimal Brain Dysfunction
- Hyperkinetic Disorder of Childhood
- Attention Deficit Disorder
**COST OF ADHD**
- $32-52 billion annually in U.S. (CDC, ADHD homepage)
- Diagnosis rates have increase 3%/year from 1997-2006
- 56% of those with diagnosis receive meds

**EPIDEMIOLOGY OF ADHD**
- Prevalence rates: 3-8% general population
- Across all cultures when same diagnostic criteria applied
- M:F is 3-4:1
- Monozygotic twins: 30% higher concordance than dizygotic twins
- Parent with ADHD: 50% chance child will have ADHD
- Females: more likely to have inattentive type, less likely to get dx and tx

**WHY SO PREVALENT?**
- Evolutionary advantage in early environments
- One theory
- Not all inclusive
- Can possibly explain high prevalence rate

**EVOLUTIONARY ASPECTS: ASSET OR DEFICIT?**
- Hyperactivity helps with:
  - Foraging
  - Spotting food, predators, danger
  - Moving to better climates
Rapidly shifting attention helps with Vigilance Scanning

Overly focused/contemplative individuals would be at a disadvantage

Impulsivity helps with: Reflexive or automatic responses Pounce or be pounced on May not get a second chance

Warriors Hunters Protectors “Response Ready Individuals”

These individuals had advantage in early environments Reason for high prevalence rate in general population Environment changed rapidly Genes haven’t caught up
School/workplace demands
Attentional focus
Motor passivity
Many distractions - ADHD brain is wired to pay attention to distractions
Passive listening
Delayed response

Steering child toward more adaptive environments/pursuits
Changing environments to fit the child
Strengths vs weaknesses assessment
Providing treatment early on when brain is pliable

Multifactorial
Genetics
Neurotransmitter deficits: dopamine, norepinephrine
Perinatal complications
Toxins: drugs, smoking, alcohol in pregnancy, lead exposure
Trauma, neurological disorders
Early severe deprivation
WHAT ADHD IS NOT!

- Just lazy
- Bad
- Unmotivated
- Incorrigible
- Stupid
- Undisciplined

CORE SYMPTOMS

- Inattention
- Hyperactivity
- Impulsivity

CORE SYMPTOMS

- Present in multiple settings
- Prior to age 7
- Symptoms must cause problems
- Symptoms must be present for 6 months

DIAGNOSTIC CRITERIA
SYMPTOMS OF INATTENTION

- Careless
- Difficulty sustaining attention
- Doesn’t listen when spoken to
- Poor follow through
- Disorganized
- Avoids things that require focus
- Loses things
- Easily distracted
- Forgetful
**DIAGNOSTIC CRITERIA**

**SYMPTOMS OF HYPERACTIVITY**
- Fidgets
- Can’t stay seated
- Runs, climbs, darts, restless
- Can’t play quietly
- Driven by motor or “on the go”

**SYMPTOMS OF IMPULSIVITY**
- Talks excessively
- Blurs out answers
- Can’t wait turn
- Intrudes or interrupts

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**DIAGNOSIS**
- No single test
- Clinical diagnosis
- Synthesis of info from multiple sources: parents, teachers, caregivers
- Structured interviews: in depth
- Rating scales: Conners, ADHD Rating Scale IV, CBCL
- Observation and interview of child
- Psychoeducational testing is helpful

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**ADHD ACROSS THE LIFESPAN**

- Prenatal
- Infancy
- Toddlerhood
- Young childhood
- Adolescence
- Adulthood
## Prenatal and Infancy
- Focus on prevention
- Good prenatal care
- Avoid drugs, smoking, alcohol
- Emotional readiness
- Strengthen parental relationship
- Difficult labor
- Perinatal complications: infection, trauma, respiratory distress
- Colicky, difficult to soothe
- Difficult with sleep/wake/eating cycle

## Toddlerhood
- Walk early
- Talk late
- Early onset of hyperactivity
- Overactive, outside range of normal behavior for age
- Affective instability
- Darter or daredevil
- Very distractible

## Young Childhood
- Core symptoms present
- Trouble in unstructured time
- Problems with rules governing behavior
- Poor peer relationships
- Poor organization skills
- Poor teacher relationships
- “Bad kid” identity
- Low self esteem

## Adolescence
- Less hyperactive, more restless
- Easily bored
- Risk taking behaviors
- Drug and alcohol use
- Sexual experimentation
- Legal problems
- Depression
- Anxiety
- Identity issues
- 60-85% children with ADHD cont to meet criteria into adolescence
ADULTHOOD
- Chronic boredom
- Lack of follow through
- Problems in relationships
- Frequent job changes/losses
- Mood and anxiety problems
- Poor anger control
- Drug and alcohol abuse
- Legal problems
- 4% prevalence rate
- Typically fewer symptoms
- Different diagnostic criteria?

TREATMENT APPROACHES
- Behavior therapy
- Parent and teacher training
- Psychoeducation
- Educational accommodations
- Treat comorbid conditions
- Psychotherapy
- Pharmacotherapy

MTA STUDY
- 1999
- Compared 4 groups
- Meds only
- Behavior Tx only
- Combo Tx
- Community Tx
- Initial results: Meds and Combo were significantly improved.
- Lead field to feel meds were defining factor

MTA STUDY
- JAACAP, May 2009- 8 year follow up
- Differences between treatment groups were not sustained at follow up
- Growth retardation was documented
- Protective effect on later substance abuse not evident
- Very heated debate currently
**MTA STUDY**
- Treat the individual
- Assess carefully for comorbid conditions
- Periodically assess efficacy of medications
- Not everyone needs long term medications
- Monitor physical parameters and alter dose or medication if necessary

**COMORBID CONDITIONS**
- ODD and Conduct Disorder
- Learning Disorders
- Substance Abuse
- Anxiety
- Depression
- Bipolar Disorder

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**ALTERNATIVE THERAPIES**
- CBT not supported
- Dietary modifications generally not supported (except in food allergic individuals)
- EEG feedback not supported
- Formal social skills training groups not supported

**MEDICATIONS**

**STIMULANTS**
- Methylphenidate based
- Amphetamine based
- Equally effective
- 65-75% response rate
- Three decades of research

(1997 AACAP Practice Parameters for ADHD)
### Methylphenidates

| Drug       | FDA Max/day | Starting Dose | | Drug       | FDA Max/day | Starting Dose |
|------------|-------------|---------------| | | | | |
| Focalin    | 20mg        | 2.5-5 mg      | | Metadate ER | 60mg        | 10mg          |
| Methylin   | 60mg        | 5mg           | | Methylin ER | 60mg        | 10mg          |
| Ritalin    | 60mg        | 5mg           | | Ritalin SR  | 60mg        | 20mg          |
|            |             |               | | Metadate CD | 60mg        |               |
|            |             |               | | Ritalin LA  | 60mg        |               |

**FDA**

**Max/day**

**Starting Dose**

**Short acting:** BID or TID

**Intermediate acting:** QD or BID

### Amphetamines

<table>
<thead>
<tr>
<th>Drug</th>
<th>FDA Max/day</th>
<th>Starting Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexedrine</td>
<td>40 mg</td>
<td>Start 5mg/dose</td>
</tr>
<tr>
<td>Dextrostat</td>
<td></td>
<td>Half for pre-schoolers</td>
</tr>
<tr>
<td>Adderall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lisdexamphetamine (Vyvanse)</td>
<td>70mg</td>
<td>20-30mg</td>
</tr>
</tbody>
</table>

**FDA**

**Max/day**

**Starting Dose**

**Short acting:** BID or TID

**Long acting:** QD

### Stimulant Side Effects

- Weight loss, decreased appetite
- Insomnia
- Headache
- Tics
- Emotional irritability
- Less common: psychosis, severe aggression
- Growth retardation (debated)
**STIMULANT USE PRECAUTIONS**
- Glaucoma
- Hyperthyroidism
- Hypertension
- Don’t use with MAO-I
- Drug and alcohol abuse
- Known cardiac defects

**NONSTIMULANTS**
- Not schedule II
- Use if anxiety or D&A issues are present
- Use if can’t tolerate stimulant
- Not immediately effective
- Monitor for SI
- Less effect on sleep, appetite
- Common side effects: sedation, nausea

Long acting: QD or BID

| FDA Max/day | Starting Dose | Atomoxetine (Strattera) | 100mg or 1.8mg/kg | 0.5-1mg/kg/day |

**2ND LINE MEDICATIONS**
- Bupropion
- Tricyclic antidepressants
- Alpha agonists: help with tics, hyperactivity and impulsivity most
- Use care in combining these with stimulants

**EDUCATIONAL CONSIDERATIONS**
- Identify needs
- Individualized approach
- Strengths-based
- Match child to environment and teacher
- Identify learning disorders
- Classroom behavioral plans
- Team approach: support each other
- Involve the child
The Joys and Trials of Having a Child with ADHD

References
- CHADD: www.chadd.org
- American Academy of Child and Adolescent Psychiatry: www.aacap.org
- National Institute of Mental Health: www.nimh.nih.gov/
- American Academy of Pediatrics: www.aap.org

Resources

Notes