Management of Behavioral Disorders in Children and Adolescents: It’s Not Just Teen Angst

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By the end of this presentation, attendees should be able to:

1. Discuss the prevalence of childhood and adolescent behavioral disorders
2. Review common pharmacotherapy options for treating behavioral disorders
3. Discuss special considerations with pharmacotherapy in children and adolescents being treated for behavioral disorders
4. Recognize how to implement nonpharmacological options for behavioral disorders
Disclosure Statement

• I am affiliated with Florida State University
• I have no other conflict of interest that may bias this presentation
Overview

- Normal developmental stages
  - Brain development
- When things go wrong
  - Identifying abnormal behaviors
- Epidemiology
- Environment and Genetics
Brief History of Child Mental Health

- Until late 1800s children were mini-adults
- First half of 20th Century (1900s – 1960s): developmental models
  - Freud: Id, Ego, Superego
  - Piaget: Concrete, Formal Operational stages
  - Erickson: Series of necessary conflicts
- Modern view: Mixture of developmental and neuro-chemical approach
  - Adult illnesses in a developing brain, with increasing use of adult pharmacotherapy
  - Researched based and limited by many impediments to child brain research
  - External influences (media and economic forces) on belief: Fact and fiction
Erickson Stages of Development

- Does not necessarily correlate with actual age, but is more functionally-based
- What modifies development progress?
  - Trauma (Physical and Emotional)
  - Environment (rich v. impoverished; passive v. active)
  - Exposure (chemicals, stimuli)
Major Developmental Milestones

0 – 6
• Huge neurological development
• Connection and pruning of neurons

7 – 11
• Ongoing but slower development
• Myelination of neural connections
  • Speed of transmission
  • Accuracy / decrease of cross-wiring
• Physical, cognitive, and emotional implications
Adolescent Developmental Milestones

<table>
<thead>
<tr>
<th>Early (11-14 years)</th>
</tr>
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<tbody>
<tr>
<td><strong>Sexual Maturation</strong></td>
</tr>
<tr>
<td>Menstruation (11-12)</td>
</tr>
<tr>
<td>First ejaculation (13-14)</td>
</tr>
<tr>
<td><strong>Major Task:</strong></td>
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<tr>
<td>Finding a personality! (Want to be accepted.)</td>
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<tr>
<td><strong>Ongoing myelination</strong></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Middle (14-17 years)</th>
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</thead>
<tbody>
<tr>
<td><strong>Gender roles, body image and popularity</strong></td>
</tr>
<tr>
<td><strong>Major Task:</strong> to be perceived as competent (highly sensitive to direct criticism from authority figures)</td>
</tr>
<tr>
<td>Peers have more influence than any other source</td>
</tr>
<tr>
<td>Experimentation with defiance / new personalities</td>
</tr>
<tr>
<td>Cause and effect NOT FULLY FORMED</td>
</tr>
<tr>
<td><strong>Risk-taking behavior common</strong></td>
</tr>
<tr>
<td>Within last month: 20% 12-20 y/o in US used Alcohol, 17% used cigarettes, 6.5% used cannabis (SAMSHA)</td>
</tr>
<tr>
<td>Between 1.8% and 2.8% have developed an addiction</td>
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## Adolescent Developmental Milestones

### Late adolescence (17-25 y/o)

- Development of morals, abstract thought
- Not everyone gets there!
- Myelination ends
- Cause and effect development achieved
- Strong desire to be powerful, competent, in control, “right”
Childhood Disorders

• What’s Different from Adults:
  • Children exist in a family unit (More likely to be affected by family dynamics than adults)
  • More likely to have irritability as a symptom
  • More likely not to be recognized as disorders by adults around them
  • May respond differently to treatment
  • May be sub-syndromal for years prior to full onset
    • Mood and psychotic disorders in particular
Mental Illness in Children

• Diagnostic strategies similar to those in adults (diagnostic interview), except children have less life experience and may not recognize or have the vocabulary to report symptoms.

• Parents/teachers are invaluable tools to provide collateral information, except this information is colored by their individual perception.
Mood Disorders

- Depression
- Bipolar Disorder
- Adjustment Disorder
- Grief
Depression

44% of all mental health hospitalizations
$1.33 billion in health care spending
11% of all youths aged 12 to 17 years have experienced a major depressive episode (MDE) in the past 12 months, of whom 73% also experienced severe impairment in at least 1 domain
Suicide is the third leading cause of death during adolescence, and among youths with depression, 29% experience suicidal thoughts and 11% attempt suicide.

And yet:
Among youths aged 12 to 17 years with an MDE within the past year, only 39% reported seeking counseling or therapy for depression, and only 20% reported ever using antidepressants
-Hispanic and African American children and adolescents have less access to care, and consequently, to treatment
Depression

Clinical Presentation:
• Depressed or just irritable mood
• Sleep disturbance
• Appetite change
• Lack in interest in usually fun activities
• Low energy
• Poor concentration
• Feelings of hopelessness, helplessness
• Feelings of lethargy or agitation
• Suicidal thoughts

Epidemiology
• 3.2% of children ages 3-17 with current episode, with a lifetime prevalence of 15%
• Genetic predisposition: 2-fold increase in risk with positive family history

Differential Diagnosis
• Bipolar
• Psychotic disorder
• Anxiety

Treatment
• Therapy
• SSRIs
• SNRI
• Augmentation
Bipolar Disorder

- Controversial diagnosis, and recently appearing so much in the media that parents and patients alike use it as a synonym for any type of mood dysregulation. Growing rates of clinical diagnosis in the USA beg the question: Does this reflect a corrective change in practice, a true change in prevalence or over-diagnosis of BPD?
- Between the years 2000 and 2016 there was a three fold increase in publications addressing the issue.
- Does NOT mean just a kid with mood swings. Mood shifts from happy to sad over a period of time (typically measured in weeks), NOT from minute to minute
- Youth diagnosed with bipolar disorder are more symptomatic and have higher level of functional impairment and are more likely to attempt suicide, have psychotic symptoms and history of psychiatric hospitalizations than those with BP-NOS.
- Poor outcomes were associated with early onset, low socioeconomic status and family history of mood disorders, among other factors.
- Bipolar Disorder is a **highly heritable condition**; having relatives with BPD increases the risk of a child developing bipolar disorder, as well as other mood disorders, especially if they exhibit sleep and anxiety disorders, which often predate bipolar disorder in high-risk groups.
# Bipolar Disorder

## Clinical Presentation:
- Increased energy
- Irritability and mood lability
- Distractibility
- Goal-directed activity/hyperactivity
- Euphoria/elated mood
- Pressured speech
- Racing thoughts/flight of ideas
- Poor judgement
- Grandiosity
- Inappropriate laughter
- Decreased need for sleep
- Periods of depression

## Epidemiology
- 1 in 200 around the globe
- Prevalence of children presenting with subthreshold symptoms: 4.3%
- Higher risk with positive family history
- Earlier onset is associated with worse functional outcomes (employment, living independently, marriage and children, education) and positive family history

## Differential Diagnosis
- ADHD (53% comorbid)
- ODD (42% comorbid)
- Anxiety (27% comorbid)
- CD (23% comorbid)
- Substance Use (9% comorbid)

## Treatment
- **Mixed/manic:**
  - Lithium
  - Divalproex
  - Risperidone, Olanzapine, Quetiapine, Aripiprazole, Ziprasidone, Asenapine
- **Maintenance:**
  - Aripiprazole
  - Lamotrigine (in adolescents only)
  - Lithium
  - Divalproex
- **Depressive:**
  - Olanzapine+fluoxetine
  - Lurasidone
  - Therapy
Grief and Adjustment Disorder

**Grief**
- Between 70 and 90% of children and adolescent have experienced a loss
- May present with impaired classroom concentration, withdrawal/disengagement and decreased classroom participation, depression/sadness, absenteeism post loss, lower quality of schoolwork and decreased homework submission, and anger
- A desire to be with the deceased person can be sometimes confused with suicidal ideation, but it is a common, different entity, and should be treated differently

**Adjustment Disorder**
- Presents like depression and anxiety due to identifiable stressor and symptoms resolve after stressor is removed.
- Examples of stressors: divorce, moving to another school, breakup with boyfriend, difficulties with peers
- If stressor is removed and symptoms persist, re-evaluation is needed for development of depression and anxiety
Anxiety Disorders

- Generalized Anxiety Disorder
- Separation Anxiety Disorder
- Post-Traumatic Stress Disorder
- Obsessive-Compulsive Disorder
- Phobias
Generalized Anxiety Disorder

**Clinical Presentation:**
1. Ongoing feeling that something bad is going to happen
2. Irritability
3. Sleeplessness
4. Agitation
5. Excessive worry
6. Changes in appetite
7. Somatic complaints (stomach and head aches, body pains)
8. Loss of interest in usual activities

**Epidemiology:**
The most common mental health diagnoses in children and adolescents, with prevalence rates of 15% to 20%, and are associated with significant impairment.

**Differential Diagnosis:**
- Other anxiety disorders
- Bipolar Disorder
- ADHD

May be associated with:
- Depression (1 in 3 children with anxiety has concurrent depression)
- Learning disorders
- Conduct disorder
- Oppositional defiant disorder

**Treatment:**
Cognitive behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) are first-line interventions. Compared with no treatment, CBT significantly reduced primary anxiety symptoms and improved response and remission. The combination of SSRIs and CBT reduced primary anxiety symptoms and improved treatment response compared with either approach alone.
Separation Anxiety Disorder

- 4% of children meet criteria
- Severe worry about being separated from loved ones
- Symptoms are severe and impairing:
  - School refusal, panic symptoms
- Treatment
  - SSRIs
  - Exposure therapy (send back to school)
Post Traumatic Stress Disorder

Clinical Presentation:
1. Re-experiencing
   - Flashbacks/nightmares
   - Behavioral reenactment
   - Reenactment through play
2. Hyper-arousal (always on the lookout): irritability or reckless, self-destructive behavior
3. Concentration problems
4. Easy startle
5. Trouble sleeping (anxiety worse at night)
6. Avoidance of events or circumstances like the trauma

Epidemiology:
- 15% to 43% of children suffer a traumatic incident. (1 in 4 girls and 1 in 8 boys are sexually abused by this time)
- Of these children, 3% to 15% of girls and 1% to 6% of boys develop PTSD. Rates of PTSD are higher for interpersonal violence.

Differential Diagnosis:
- Other anxiety disorders
- Depression
- ADHD
- May be associated with:
  - Learning disorders
  - Conduct disorder
  - Oppositional defiant disorder

Treatment:
1. Cognitive behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) are first-line interventions.
2. For sleep: clonidine and Prazosin
3. Antipsychotics may be added if symptoms are severe
Disruptive Behaviors Disorders

Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder
Attention Deficit and Hyperactivity Disorder

- One of the most diagnosed illnesses in children and adolescents (and adults!)
- Although ADHD carries the stigma of being a consequence of modern lifestyle, the first mentioning of the syndrome dates back to the late 18th century
- Prescribing rates of stimulants have increased dramatically, with concomitant increase in misuse and abuse, including in young patients.
- Associated with poor school performance in childhood and poor work performance later in life
- Medications have beneficial short-term effects and improve notetaking quality, quiz scores, class work productivity, and disruptive behaviors and are associated with improvements in a wide range of cognitive functions in children with ADHD, including complex reaction time, spatial recognition memory reaction time, inhibition, working memory and strategy formation.
ADHD

Clinical Presentation:
- Difficulty paying and sustaining attention (mind wanders off)
- Difficulty organizing and completing tasks
- Unable to finish tasks
- Dislikes or avoids tasks that demand sustained mental effort (procrastination)
- Excessive fidgeting or restlessness
- Easily distracted
- Forgetfulness
- Irritability
- Symptoms present prior to age 12

Epidemiology:
- Prevalence in children: around 6.5%
- Prevalence for adults: 2.5–3.4%
- Ratio of male to female cases was 7.0 for the hyperactive-impulsive subtype, 4.9 for the combined subtype, and 3.0 for the inattentive subtype of ADHD.
- At any time there is still a greater percentage of boys with ADHD of any subtype (3.6%) compared to girls (0.85%)

Comorbidities:
- Oppositional defiant disorder (ODD) and conduct disorder (CD) are the most prevalent comorbid conditions (ranging from 25% up to 80%), substance use disorders (SUDs) become more and more of a problem during adolescence and even more so in adulthood.
- Anxiety (25%) and depression (5-20%)
- 20–50% of children with ADHD also meet criteria for ASDs
- Tic disorders are seen in 10 to 20% of children with ADHD (occur in up to 3–4% of the general population)
- 25–40% of all patients with ADHD have major reading and writing difficulties, and many show co-existing language disorders
- Bipolar disorder 20% (but rare in pre-adolescents)

Treatment:
- Childhood pharmacological treatment:
  - Methylphenidate
  - Amphetamines
  - Atomoxetine
  - Guanfacine
  - Clonidin
- Childhood: non-pharmacological treatment
  - Omega-3
  - Diets
  - Neurofeedback
  - Multimodal psychosocial
  - Working memory training
  - Behaviour modification
  - Parent training
  - Self-monitoring
  - School-based
Oppositional Defiant Disorder

• Persistent pattern of opposition and defiance to authority, rules, and external means of behavioral control
• May begin in one location (home) and then generalize (to school)
• It is a precursor to Conduct Disorder
• Treatment:
  • Parent skill training
  • Treat other illness, especially ADHD
  • Occasionally, in severely aggressive ODD, may need to approach like Conduct Disorder
Conduct Disorder

Clinical Presentation:
1. Disruptive behavior exemplified by:
   - Aggression to people/animals
   - Deceitfulness or theft
   - Destruction of property (e.g., setting fires)
   - Serious rule violations (truancy, running away)
2. Two subtypes
   - Childhood onset (before 10): Worse prognosis and more common in boys
   - Adolescent onset: More likely short lived, less severe, may be triggered by adverse event (e.g., divorce, death), gender gap less wide, but boys still more prevalent

Epidemiology:
- Onset on or before age 16
- Boys > Girls, Boys more violent than girls
- 6-16% for boys, 2-9% for girls (more common than ADHD)

Predisposing factors:
- Genetic
- Abuse (especially neglect)
- Inconsistent parenting
- Large family size
- Difficult infant temperament
- Conduct disordered peer group

Differential Diagnosis/Comorbidities:
- Learning Disorders
- Mood Disorders
- Anxiety Disorders
- Substance abuse
- ADHD -- bad combination!

Treatment:
- Must treat comorbidities (careful evaluation needed), in particular mood, anxiety and ADHD
- Counseling for patient and family (to improve parenting skills)
- Residential Care (Boot camp)
- Medications should aim at reducing aggression:
  - Blood pressure meds (Tenex, Clonidine, Propranolol)
  - Anti-seizure meds (Depakote, Tegretol, Topamax, etc)
  - Anti-depressants
  - Atypical antipsychotics

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Clinical Vignettes #1

Seven year old boy, first grade, struggling with completing assignments, keeping hands to himself, arguing with teachers, and maintaining peer relationships. He occasionally has “wetting accidents.”. The most likely diagnosis is

A. ADHD
B. PTSD
C. Oppositional Defiant Disorder
D. Grief
Clinical Vignette #1 cont.

What are the most common pharmacotherapy options for treating the behavioral disorder described in the previous slide?

A. Imipramine
B. Methylphenidate and Guanfacine
C. Valproic Acid
D. Fluoxetine
Clinical Vignette #2

Thirteen year old girl, eight grade, failing all classes but gym and art, quiet, loner, few if any vocal contributions to class, rare work completion, varying work quality. The most important next step in treating this patient is:

A. Begin pharmacological agent immediately
B. Obtain collateral information from parents
C. Interview patient using art/play therapy
D. Refer to psychotherapy
What is the best nonpharmacological options for this behavioral disorder:

A. Parent-only CBT (so they can stimulate the child in a better way)

B. Art therapy

C. CBT (child)

D. Behavior therapy (boot camp)
Clinical Vignette #3

Seventeen year old High School senior, chronic behavioral problem, aggressive, multiple suspensions for talking/blurting in class, “just can’t keep quiet”, mocking teachers, lies to get out of trouble, teased by peers, work quality inconsistent. Choose the best diagnosis/treatment combination:

A. Conduct Disorder/Mood Stabilizers + Behavioral therapy
B. ADHD/stimulant
C. Bipolar Disorder/Mood stabilizer
D. Substance Use Disorder/group therapy
E. Grief/Counseling
Clinical Vignette #3 (cont)

What special considerations with pharmacotherapy should be taken when treating the patient discussed in the previous slide for behavioral disorder?

A. Monitor blood work
B. Minimize interaction among pharmacological agents
C. Monitor response and adjust dose accordingly
D. All of the above
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