Impact of Psychotropics in School

HOW TO COORDINATE CARE ACROSS SETTINGS

WILLIAM PUGA, MD
CHILD AND ADOLESCENT PSYCHIATRIST
Age of onset

- Anxiety Disorders
  - Specific to childhood
    - Separation anxiety
    - School phobia
    - Selective mutism
    - OCD
- ADHD
- Autism Spectrum
- Tourette’s
- Major Depression
  - Female: adolescence-childbirth-menopause
- Major mental illness:
  - Bipolar: half start before 25 yo
  - Schizophrenia: 16-25 yo (ave 18 in males, 25 in women)
Mood Disorders
Charlie, I just got the new DSM V...
BIO-PSYCHO-SOCIAL

- Bio-
- Psycho-
- Social-
Psychiatric Diagnosis

“Axis I” Psychiatric

Organic

“Axis II” DD PD

Substance Abuse
Psychiatry 101
Oh, Homey!
Division of labor

- **Parietal Lobe**: Sense of touch, awareness of spatial relationships and academic functions such as reading.
- **Frontal Lobe**: Emotional control, self awareness, motivation, judgment, problem solving, talking, movement and initiation.
- **Occipital Lobe**: Vision.
- **Cerebellum**: Balance, coordination, skilled motor activity.
- **Temporal Lobe**: Memory, hearing, understanding language, and processing information.
- **Brainstem**: Breathing, heart rate, arousal and consciousness, sleep and wake cycles.
Neuron
Monoamine Theory

- **Limbic system**
  - Adrenalin
  - Noradrenalin
  - Serotonin (anxiety, sleep, eating)
  - Dopamine (psychosis, concentration)

- GABA (inhibitory)
- Glutamate (activating)

- 90% inhibitory
The Triune Brain: how therapy works
Prodromal Symptoms
Under 7 y/o everything looks like ADHD
Mood disorders
Mood Disorders

- normal
- Major Depression
- Cyclothymia
- Bipolar
Bipolar vs Unipolar

- **Bipolar**: “Chemical imbalance”
  - No ceiling, no floor

- **Unipolar depression**: chemical + receptor/neuroanatomy
  - Post-mortem brain biopsy results
  - At least 2 weeks to change receptors
Classic Clinical Symptoms

Bipolar Disorder

- Onset before age 30
- Mood: elevated, expansive, irritable
- Speech: loud, rapid, running, rhyming, clangor, vulgar
- Wt. Los.
- Grandiose delusions
- Distracted
- Hyperactive
- No need for sleep
- Inappropriate
- Flight of ideas
- Becomes suddenly escalating over several days

Yvonne

- Previous manic episodes
- Mood: dysphoric, depressive, despairing
- ↓ Interest in pleasure
- Negative views
- Fatigue
- ↓ Appetite
- Constipation
- Insomnia
- ↓ Libido
- Suicidal preoccupation
- May be agitated or have movement retardation
Masked depression
Pieces of the Bipolar Puzzle

- Family history
- “Affective storms”
- Sleep!!
- Psychosis
- Vegetative symptoms of depression prepubertal
- “Atypical” depression: sleep and appetite
- Hard to treat ADHD
- Adverse reactions to other Rx’s
  - Stimulants: psychosis/”speed”
  - Strattera: rage
  - Antidepressants: rage
Genetics of Bipolar

- General risk: 3-8%
- One parent: 15-25%
- Two parents: 60%
- Poly-genetic
- Monozygotic twins: 60% concordance
Childhood Bipolar Factoid

- Incidence in Adults: 1-3%
- Incidence in Children > Adults
• Diagnosis of Bipolar may be old school very soon

• DSM 5:
  ○ Disruptive Mood Dysregulation Disorder
MEDS
Antidepressants

- MAOI’S
- Tricyclic antidepressants
- SSRI’s

Prozac
How do anti-depressant work?

Fouling up the “clean-up system”
MAO
Uptake I pump
Meds making thing worse?

- Undiscovered bipolar?
  - Antidepressants, stimulants
    - Increased aggression
    - Psychosis
    - More hyper
Mood stabilizers

Lithium

Anti-seizure
  Depakote
  Tegretol/Trileptal
  Topamx/Zonegran

Anti-Psychotics
  Risperdal
  zyprexa
  Seroquel
  Abilify
  Geodon
  Latuda
“Atypical” risks

- Elevated cholesterol
- Insulin resistance/Risk of diabetes
- Weight gain
- Sedation
ADHD

- Triad:
  - hyperactivity
  - impulsivity
  - inattention
- 8% of population
- M>F
- 9:1
- Inattentive 4:1
ADHD

- History:
  - Dr Charles Bradley, 1937
    - Meningitis epidemic
    - Benzadrine
    - Minimal brain dysfunction

- Current view
  - Developmental delay?
  - MRI: 3-5 yr lag in prefrontal cortex development
Gray matter maturation
ADHD causes

Genetics: Developmental?

Hard drive damage:
Birth (or later?) trauma
  physical: O2 deprivation
  toxic: alcohol, drugs, tobacco, Pb
  infectious-prenatal or peri-natal
ADHD over a lifespan

Symptoms

Childhood | Puberty | Adulthood
ADHD lifecycle

- 70% of patients will grow out of most ADHD symptoms
- 25% of patients will require meds as an adult
Actigraphy: Bipolar vs ADHD
## Bipolar vs. ADHD

<table>
<thead>
<tr>
<th>Bipolar</th>
<th>ADHD</th>
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</thead>
<tbody>
<tr>
<td>Awakens in the night</td>
<td>Initial insomnia</td>
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<tr>
<td>Grandiose</td>
<td>Demoralized</td>
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<tr>
<td>Irritable mood-&quot;affectice storms&quot;</td>
<td>Poor frustration tolerance</td>
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<tr>
<td>Racing thoughts</td>
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<tr>
<td>Pressured speech</td>
<td></td>
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<tr>
<td>Psychosis</td>
<td></td>
</tr>
<tr>
<td>Family hx of bipolar</td>
<td></td>
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</tbody>
</table>
ADHD Meds
Stimulants

- Rx’s that help:
  - Increase dopamine
  - Increase noradrenalin
  - Histamine?

- Ritalin vs Adderall = Pepsi vs Coke
  - Timing is everything
Timing is everything...

Methylphenidate Options

8am  12pm  4pm  8pm
Anxiety
Anxiety disorders

- “Eu”-anxiety
- Adjustment disorder
- Panic Disorder
- PTSD
- GAD
- Social
- OCD
- Separation anxiety
- “Mash-up”
Panic Disorder

Hereditary

- F>M, 2:1
- Locus ceruleus (Noradrenalin) over active

- 40% of school phobia kids will have panic disorder in adulthood
PTSD

- **Rx:**
  - SSRI
  - Clonidine/Tenex: noradrenalin
  - Topamax
  - Minipress (prazosin): NE
    - Males 1-3mg
    - Females higher (-45?)
Separation anxiety disorder

- Separation anxiety
  - Normal
    - 8 months-15 months (peak 18-36 months?)
- Disorder
  - 4% children, 7% adults
- Future
  - Increase likelihood of ADHD, bipolar, panic disorder
OCD

- Caudate nucleus: very overactive
- Genetics: incomplete penetrance

PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal infections)
**OCD RX**

- **Tx:**
  - **High doses** of SSRI’s
    - Prozac 60-120mg
  - Inositol
    - 3000mg +
  - Anafranil
    - Adol 150mg
    - Level, EKG
  - Neurontin?
  - Zofran
    - 1-4 mg tid
RX’s

- Anti-depressants: mainstays of treatment
  - Ssri’s
  - Snri’s
  - Maoi’s
  - Remeron

- Benzodiazepines (GABA 1): addictive
  - Short acting: ativan, xanax
  - Longer acting: Klonopin, valium, librium

- GABA 2
  - Neurontin/lyrica

- Buspar

- Alpha-Agonists
  - Clonidine
  - Tenex

- Zofran
Anxiety Meds

They're anti-anxiety pills

But I'm afraid to take them!!