Depression in Children and Adolescents

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Conflicts of Interests

• No monetary or other support from any entities other than my employer, OUHSC
History of Child Depression

- Early 17th century case reports
- Mid 19th century reports of melancholia
- Rare diagnosis in children prior to 1960 due to psychoanalytic theory
- 1970’s research confirmed existence and increased awareness
Why Depression?

• Psychoanalytic theory
  – Intrapsychic conflict between the ego and a persecutory superego
  – Superego only formalized after resolution of Oedipal conflict in late adolescence
  – Children could not experience mood disorders
Data

• 1 year incidence
  – Preschool 1%
  – Latency 2%
  – Adolescent 4-8%

• Suicide
  – Age 10-24 Third leading cause of death
Suicide

Age 10-24 Third leading cause of death

- Over 150,000/yr ER visits for self inflicted injury
- Female try more often
- Male succeed more often (81% vs 19%)
- Grades 9-12
  - 16% seriously considering
  - 13% have a plan
  - 8% have tried

Over 150,000/yr ER visits for self inflicted injury
DSM 5

- Major
- Postpartum
- Bipolar
- Cyclothymic
- Dysthymic
- Endogenous
- Atypical

- Seasonal
- Reactive
- Psychotic
- Primary
- Secondary
- Unipolar
Major Depression

- Significant feelings of
  - sadness
  - hopelessness
  - apathy
Postpartum Depression

• Initiates within 4 weeks of giving birth

• Significant feelings of sadness, hopelessness
Bipolar Depression

- Episodes of depression alternating with periods of mania or hypomania
Cyclothymic Depression

• Episodes of depression
• (not meeting major depression criteria)
• alternate with hypomanic (not manic) periods over at least 2 years
Dysthymic Depression

• Chronic low grade depressed mood of at least 2 years duration
Endogenous Depression

• Occurs without precipitating event or cause
Atypical Depression

- Depressed mood responsive to positive experiences/events
- Associated with:
  - Hypersomnia
  - Increased weight/appetite
  - Sensitivity to rejection
  - Feeling of heaviness in arms or legs
Seasonal

• Occurs seasonally, usually Fall and Winter but can be Spring Summer.

• (Strong suspicion connection Vitamin D levels)
Reactive Depression

• Response to traumatic or very stressful event or experience
Psychotic Depression

• Delusions
• Hallucinations
• Out of touch with reality
Primary Depression

• Not triggered by medical condition or other psychiatric condition
Secondary

• Depression due to medical condition or other psychiatric condition
Unipolar Depression

- No history of hypomaniac or manic episodes
- Suffer from Major Depressive episodes
Who

• Any age
• Expressed differently at different ages
  – Infant
  – Child
  – Adolescent
  – Adult
What are the common signs of Depression?

• Depressed or sad mood with
  – diminished interest in usual activities
  – Inappropriate guilt
  – Fatigue, feeling tired all the time
  – Weight gain or loss
  – Feelings of worthlessness/Hopelessness
  – Trouble concentrating/thinking
  – Ruminating
  – Thoughts of death, suicide or not existing
What continued

- Restlessness
- Irritability
- Tearfulness/Crying
- Trouble making decisions
- Somatic complaints
Infant Depression
Preschool Depression

- Somatic complaints
- Irritability
- Hyperactivity
- Social withdrawal
Latency Depression

Easier to be mad than sad
Adolescent Depression

- Sadness
- Only up around peers
- Withdrawn
- Drop out of favorite activities
- Falling grades/performance
- Weight gain or loss
- Substance abuse/Alcohol/Tobacco
- Decreased/Disrupted sleep
When Depression Can Occur

- Medical
  - Hormonal
  - Injury
  - Infectious
  - Medication
- Genetic
  - Inherited
  - Incidental
  - Secondary
- Life
  - Birth
  - Transitions
  - Marriage
  - Death
- Trauma
  - Natural
  - Manmade
  - Accidental
- Nutrition
  - Vitamin Deficiency
  - Inadequate calories
Nutritional

- Deficiency
  - B6
  - B12
  - D
  - Folic Acid
  - Omega 3 Fatty Acids

- 1,000 – 4,000 mg per day
Nutritional continued

• Magnesium
• Selenium
• Iodine
• Iron
• Zinc
General Medical

- Hypothyroidism
- Epilepsy
- Autoimmune (lupus)
- Anemia
- Vitamin Deficiency
- Chronic Fatigue
- Sleep Deprivation/Disorder
- Infection (HIV, abscess, etc.)
- Diabetes
- Menopause
Comorbidities

- Anxiety
- ADHD
- Dysthymia
- Learning Disabilities
- Sleep Disorders
- Eating Disorders
- Substance Abuse
How to Treat Depression

• Determine type and cause

• Options
  – General and Specific Medical needs
  – Environmental interventions
  – Nutritional interventions
  – Educational interventions
  – Ancillary therapies
  – Individual/Family/Group Therapy
  – Medication
Therapy
Antidepressant/Anxiety

- FDA Suicide Warning
- Start low
- No grapefruit
- Watch for interactions with other medications
- Withdrawal syndrome
  - Paroxetine
  - Venlafaxine
  - Cymbalta
  - Sertraline
  - Fluvoxamine
Tricyclic Antidepressants

• TCAs developed first in 1950’s
• Imipramine first
  – Designed to treat psychosis
  – Tendency to induce mania

Generally as a class
– Deadly in overdose due to arrythmia
– Multiple Side Effects
– Minimally effective in pediatrics
TCAs

- Imiprimine
- Amitriptyline
- Nortriptyline
- Desiprimine
- Clomiprimine
Monoamine Oxidase Inhibitors (MAOI)

• Decrease monoamine oxidase metabolizing of neurotransmitters so neurotransmitters work longer

• LETHAL interactions with dietary and drug

• NOT for children

• Types
  – Isocarbozazid
  – Phenelzine
  – Tranylcypromine
  – Selegiline
Serotonin Reuptake Inhibitors (SSRI)

• Increase amount of Serotonin available between synapses

• Types
  – Fluoxetine          Escitalopram          Citalopram
  – Sertraline          Fluvoxamine          Paroxetine
SSRI for Anxiety

- Anxiety
  - Obsessive Compulsive
  - Panic
  - Separation
  - Social
  - Generalized
  - Post traumatic
SSRI other uses

• Eating Disorder
• Depression
• Dysthymia
SSRI Side Effects

- Weight gain
- Agitation
- Mania
- Drowsiness
- Nausea/Vomiting
- Insomnia
- Serotonin Syndrome
- Withdrawal syndrome
  - Paroxetine
  - Fluvoxamine
  - Sertraline
- Headache
- Bruxism
- Vivid Strange Dreams
- Tremors
- Dizziness
- Photosensitivity
- Liver impairment
- Mood changes
Other Antidepressants

• Norepinephrine-dopamine reuptake inhibitor and Antagonist of several Nicotine acetylcholine receptors
  — Buproprion

• Serotonin-norepinephrine reuptake inhibitor
  — Duloxetine
  — Venlafaxine
Other Antidepressants

• Noradrenergic and specific serotonergic
  – Mirtzapine
Side Effects/Risks of Atypicals

- Weight loss/gain
- Increased seizure risk
- Withdrawal syndrome
- Dizziness
- GI upset (nausea, diarrhea)
- Constipation
- Changes in Libido/Orgasmic ability
- Insomnia/Drowsiness
- Muscle aches
- Sweating
- Headaches
- Dream changes
- Increased anxiety/jitteriness
Side Effects of...

• Mirtazapine
  – Drowsiness
  – Weight gain
  – Dizziness
Withdrawal Syndromes?

• The shorter acting the medication the more likely there will be a withdrawal syndrome
• Depending on medication can last 2-3 days
• Withdrawal syndrome can include:
  – Nausea/vomiting/diarrhea
  – Suicidal ideation/Self harm behavior
  – Anxiety/Panic/Jitteriness/Tremors/Irritability
  – Inability to concentrate/poor memory
Serotonin Syndrome

- Hyperthermia
- Hypertension
- Hallucinations
- Confusion
- Agitation
- Weakness
- Dizziness
- Ataxia

- Nausea
- Vomiting
- Diarrhea
- Tremor
- Muscle twitching
- Shivering
- Sweating
- Tachycardia
Other drugs increasing risks of Serotonin Syndrome

- Triptans
- MAOIs
- Meperidine
- Pentazocine
- Linezolid
- Tramadol
- Fentanyl
- Trazodone
- Methylene blue
- Buspirone
- Venlafaxine
- Duloxetine
- LSD
- Cocaine
- St. John’s Wort
- Ginseng
Serotonin Syndrome Treatment

• Usually last between 24-72 hours after stopping offending agent BUT can last for weeks
• Inpatient usually
• Stop suspected medication causing
• Benzodiazepines for seizures and agitation
• IV fluids to maintain hydration
• Oxygen prn/intubation if needed
• Nitroprusside or esmolol for tachycardia and HTN
• Phenylephrine or epinephrine for low blood pressure
• Cyproheptadine to block serotonin production
What is Approved for What?

• Major Depression
  – Fluoxetine age 8 years + 10-20mg/day
  • TADS study by NIMH
    – 439 12-17 yr old x 12 wks
      » Fluoxetine + CBT 71% improved
      » Fluoxetine 61% improved
      » CBT 43% improved
      » Placebo 35% improved

• Risks
  – Cardiac Arrhythmia with QT interval prolongation
FDA Approved Pediatric Age Ranges

- **escitalopram**: [2] (6-17 years)
- **fluoxetine**: *[3] (6-17 years)
- **fluvoxamine**: [4] (6-17 years)
- **sertraline**: [5] (6-17 years)
- **clomipramine**: [6] (6-17 years)
- **imipramine**: [7] (6-17 years)

Legend:
- **childhood enuresis**
- **MDD**
- **OCD**
## Approved options in Children

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Treatment Alternatives

• Try another antidepressant
• Supplement?
• Sleep Deprivation?
Anxiety

Frequently comorbid with Depression
Often same medication helps both
Therapy, especially CBT, can be helpful
Medical workup indicated

Thyroid    Anemia    Vitamins
Medications Autoimmune Caffeine
Stress     Cardiac    Sleep
Allergies
Where