Childhood Anxiety Disorders

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Disclosures

none
My Background

• Marquette University – BS in biomedical sciences
• University of Wisconsin School of Medicine and Public Health - MD
• University of Wisconsin – General Psychiatry Residency
• University of Wisconsin – Child and Adolescent Psychiatry Fellowship
• Board Certified in Adult Psychiatry and Child and Adolescent Psychiatry
• Clinical Assistant Professor at University of Iowa since 2014
Objectives

• To be able to identify symptoms of anxiety in children
• To be able to identify symptoms of anxiety in children often described by parents
• To be able to provide psychoeducation on nature of anxiety disorders
• To be able to provide basic recommendations for treatment
How does anxiety work in the brain?

**Upstairs Brain**
- Allows us to think before we act
- Decision-making
- Control over emotions & body
- Focus/concentration
- Empathy
- Self-awareness

**Downstairs Brain**
- Allows us to act before we think
- Fight/Flight response
- Emotional reactions
- Bodily functions

Source: Siegel & Bryson "The Whole Brain Child"
Neuronal Circuitry of Anxiety vs Fear

- HPA axis – hypothalamus, pituitary, adrenal axis
- Prefrontal Cortex – medial prefrontal cortex and orbital prefrontal cortex
- Amygala – emotion center
- Hippocampus – memory, highly tied to emotions
- Thalamus – sensory input relay and relay center
Prefrontal Cortex

- Dorsolateral PFC
- Ventrolateral PFC
- Medial PFC
- Ventral PFC
- Orbitofrontal Cortex
- Caudal PFC
Fig. 3 Functional division of the human prefrontal cortex.
Limbic System

- Hippocampus - memory
- Amygdala – emotional, attentional, and social processing
- Nucleus Accumbens - reward
- Hypothalamus – homeostasis regulation and response output
- Thalamus – relay system for sensory input
- Basal ganglia – preplanned motor and emotional responses
- Cingulate gyrus – linking emotions and learning
Fear
Panic
Phobia

The Limbic System

- Corpus callosum
- Fornix
- Pineal gland

COMPONENTS IN THE DIENCEPHALON
- Anterior group of thalamic nuclei
- Hypothalamus
- Mamillary body

COMPONENTS IN THE CEREBRUM
- Cingulate gyrus
- Parahippocampal gyrus
- Hippocampus

Amygdaloid body
Worry circuit – CSTC loops
Symptoms and Brain Regions

Amygdala-centered circuit
• Fear
• Panic
• Phobia

Cortico-striato-thalamic-cortical circuit
• Anxious/worry
• Apprehension
• Expectation
• obsessions
Behaviours

Approach (pleasure-seeking)
- Involves the limbic system and the reward circuit
  - Success: remember positive reinforcement
  - Failure: continue seeking pleasure elsewhere

Avoidance (of pain)
- Flight
  - Involves the lateral hypothalamus, the midbrain, and the pain circuit
  - Success: remember successful avoidance strategy
- Fight
  - Inhibition of Action
  - Involves the septal area, the hypothalamus, the amygdala, and the ventromedial hypothalamus
  - Failure: try another avoidance strategy
Anxiety or Fear?

- Anxiety is a future-oriented state elicited by threats that are physically distant, psychologically distant, or unpredictable;
- Bed nucleus of stria terminalis?

- Fear, on the other hand, is a phasic state of heightened arousal and orienting toward an immediate and identifiable danger, such as the nearby screeching of car brakes.
- amygdala
Neurotransmitters

Fear
- 5HT
- GABA
- Glutamate
- CRF (HPA)
- NE
- Voltage-gated ion channels

CSTC Circuit
- 5HT
- GABA
- Glutamate
- CRF (HPA)
- NE
- Voltage-gated ion channels
Anxiety Experienced as a Physical Response

- Chest pain or discomfort
- Stomach discomfort, nausea
- Dizziness, lightheadedness, unsteady feelings
- Feeling foggy, detached
- Feeling very hot or cold
- Feelings of a lump in the throat or choking

- Headaches
- Numbness, tingling
- Rapid heart rate
- Rapid breathing, feeling shortness of breath, breath holding
- Sweating
- Trembling or shaking

- Muscle Tension
- Restlessness
- Irritability or feeling on edge
Anxious Behavior

- Avoidance
- Not doing things
- Refusing to do things – go places
- Moving away from the threats
Examples

- Difficulty raising hand in class
- Difficulty reading out loud
- Excessive fear of making mistakes or need to be perfect in appearance and work projects
- Not getting routine immunizations or dental work
- Not hanging out with other kids or having few friends because of social fears
- Not sleeping in own bedroom or refusing to attend sleepovers
- Refusing to go to school
- Refusing to participate in sports, dance, other performances
Danger of Avoidance

- Habit forming
- Unhelpful way to cope with stress
- Missing out
- Leads to skills deficits
Anxious Thinking

• This is the worrying part
• Worries can be thoughts about current situation, future events
• Most children are not able to identify anxious thoughts
• Worries can range from appropriate to far fetched concerns
Examples

- I’ll fail my test
- Mom might forget to pick me up from school
- My teacher will yell at me and kids will laugh
- That dog might bite me
- The world is unsafe, dangerous
- What if I fall off my bike and everyone laughs
- What if I throw up at school
- What if my mom or dad dies
More concerning worries

- Expecting the worst to happen all of the time
- Coming to extreme conclusions from vague information
- Trouble falling asleep due to excessive worries about daily events
- Worries about getting enough sleep or staying asleep
- Extreme Predictions of the future events
- Catastrophic outcomes
- Viewing themselves as powerless, worthless
- Worrying for hours
Functioning with Anxiety

- Severe impact on quality of life
- Often appear disorganized, unfocused
- Fail to reach their full academic potential or reach it with extreme efforts
- Missing out on important social and recreational activities due to fears
- Missing important skills (making friends, dating, assertiveness)
- Frequent crying, tantrums, poor sleep
Normal Fears through Childhood

<table>
<thead>
<tr>
<th>Age</th>
<th>Development Conditioned Periods of Fear and Anxiety</th>
<th>Psychopathological Relevant Symptoms</th>
<th>Corresponding DSM-IV Anxiety Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early infancy</td>
<td>Within first weeks: Fear of loss, eg. physical contact to caregivers</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>0–6 months: Salient sensoric stimuli</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Late infancy</td>
<td>6–8 months: Shyness/anxiety with stranger</td>
<td>Separation anxiety disorder</td>
<td>Separation anxiety disorder</td>
</tr>
<tr>
<td>Toddlerhood</td>
<td>12–18 months: Separation anxiety</td>
<td>Sleep disturbances, nocturnal panic attacks, oppositional deviant behavior</td>
<td>Separation anxiety disorder, panic attacks</td>
</tr>
<tr>
<td></td>
<td>2–3 years: Fears of thunder and lightening, fire, water, darkness, nightmares</td>
<td>Crying, clinging, withdrawal, freezing, eloping seek for security and physical contact, avoidance of salient stimuli (eg, turning the light on), pavor nocturnus, entreats</td>
<td>Specific phobias (environmental subtype), panic disorder</td>
</tr>
<tr>
<td></td>
<td>Fears of animals</td>
<td>–</td>
<td>Specific phobias (animal subtype)</td>
</tr>
<tr>
<td>Early childhood</td>
<td>4–5 years: Fear of death or dead people</td>
<td>–</td>
<td>Generalized anxiety disorder, panic attacks</td>
</tr>
<tr>
<td>Primary/elementary school age</td>
<td>5–7 years: Fear of specific objects (animals, monsters, ghosts)</td>
<td>–</td>
<td>Specific phobias</td>
</tr>
<tr>
<td></td>
<td>Fear of germs or getting a serious illness</td>
<td>–</td>
<td>Obsessive compulsive disorder</td>
</tr>
<tr>
<td></td>
<td>Fear of natural disasters, fear of traumatic events (eg, getting burned, being hit by a car or truck)</td>
<td>–</td>
<td>Specific phobias (environmental subtype), acute stress disorder, posttraumatic stress disorder, generalized anxiety disorder</td>
</tr>
<tr>
<td></td>
<td>School anxiety, performance anxiety</td>
<td>Withdrawal, timidity, extreme shyness to unfamiliar people and peers, feelings of shame</td>
<td>Social anxiety disorder</td>
</tr>
<tr>
<td>Adolescence</td>
<td>12–18 years: Rejection from peers</td>
<td>Fear of negative evaluation</td>
<td>Social anxiety disorder</td>
</tr>
</tbody>
</table>
Epidemiology

• Lifetime prevalence 8.3-27%
• Estimated prevalence 15%
• More often in girls than boys
• Onset around 8.5 years of age
• Under-recognized and under-diagnosed
• Comorbidity is common
Etiology

- Familial
  - Genetic factors (25-60%)
  - Environmental Factors

- GWAS – none focused on kids
- In panic d/o – two genes identified but not replicated in another study
Risk Factor - Temperament

- Behavioral Inhibition
  - Withdraw from novel or unfamiliar social situations
  - 15% of infants and ½ develop social anxiety disorder

- Anxiety Sensitivity
  - beliefs that anxious symptoms will have harmful physical, psychological, or social consequences
  - Predicts panic disorder
Risk Factor – Environmental

• These are high affected by genetic factors
• Stressful life events
• Parenting
  • Overprotective and over controlling parenting style
  • Anxious parents may fail to encourage social responsiveness in their children
  • Some fears may arise from modeling and vicarious learning and verbal transmission of threat information about novel objects
• Lack of social support
• Negative peer interactions
Consequences of Anxiety Disorders

• School Performance
• Peer relationships
• Depression
• Substance abuse
• Occupational impairment
• Suicidality
Anxiety Disorders

- Social Phobia or Social Anxiety Disorder
- Generalized Anxiety Disorder
- Separation Anxiety Disorder
- Phobias
- Selective mutism
- Panic Disorder
OCD and PTSD

- Distinct disorders
- Differ clinically
- Differing treatment recommendations
Most Common Disorders to Know

- Social Anxiety Disorder is most common in childhood
- Generalized Anxiety Disorder
- Simple Phobias
- Separation Anxiety Disorder
Specific phobias

- Marked fear or anxiety about a specific object or situation
- In children, the fear/anxiety may be expressed by crying, tantrums, freezing, clinging
- The phobic object or situation almost always provoke immediate fear or anxiety
- Avoidance or endured with distress
- Fear out of proportion to actual threat
- Present for more than 6 months
- Clinically impairing
Generalized Anxiety Disorder

Symptoms
- Difficult to control worries, excessive
- Irritability
- Easily fatigued
- Difficulty concentrating
- Difficulty sleeping
- Tense
- Restlessness

What Parents commonly say
- My child is so well-behaved at school
- At home, we walk on egg shells
- Easily upset over seemingly small things (not necessarily demands/requests)

Impairment or significant distress
- Not related to substances/medical condition
- Not better explained by another disorder
- At least 6 months
Onset usually around adolescence

1% of adolescents will have GAD in any given year

Girls are twice as more likely to have GAD than boys

Temperament factors – more inhibited, negative evaluation (glass half empty), risk averse

Environmental factor – over protective parents

Unlikely to go away without treatment
GAD

Emotions
• Anxiety/Worry
• Sadness
• Anger
• Shame
• Guilt

Physical Feelings
• Fidgety, amped up, unable to sit still
• Irritable
• Tired
• Muscle spasms in neck/shoulders
• Headaches
• Stomach aches
• What if something bad happens?
• What if there is a tornado and the house is destroyed?
• What if grandma doesn’t pick me up after school?
• What if I get cancer?
• What if I don’t get into college?
• What if someone breaks into the house?
GAD Behaviors

- Tantrums
- Snapping at others
- Difficulty paying attention or concentrating
- Difficulty falling asleep or staying asleep
- Excessive studying
- Reassurance seeking
- Excessive list making
- Procrastinating
- School refusal
What GAD kids Say

- I’m worried
- I’m scared
- I’m easily upset
- Keyed up
- Can’t stop thinking
- Trouble shutting off my brain at night
- Stressed all the time
- Exhausted
- I can’t relax
- I need to keep busy
- I can't concentrate
Social Anxiety Disorder Criteria

Marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others. Must occur in peer settings for kids and not just during interactions with adults.

Individual fears they will act in a way or show anxiety symptoms leading to negative evaluation.

Social situations almost always provoke fear or anxiety. In kids, this is often expressed with crying, tantrums, freezing, clinging, shrinking, failing to speak in social situations.

Social situations are avoided or endured with intense fear or anxiety.

Fear is out of proportion to actual threat.

Persistent, typically 6 months or more.

Significant distress or impairment.

Not better explained by a different disorder like autism and not related to a medical disorder.
Social Anxiety

**Emotions**
- Anxiety/Worry/Fear
- Embarrassment
- Shame
- Helplessness
- Sadness
- Anger

**Physical sensations**
- Stomach aches
- Blushing
- Sweating
- Shaking
- Muscle tension
- Irritability
- Feeling Detached from one’s body
Social Anxiety Thoughts

- kids won’t like me
- they will laugh at me
- I’ll say something stupid
- I’ll look silly
- People will think I am an idiot
BEHAVIORS

School refusal
Avoiding participating in activities, going places
Asking a parent to be around (depends on age)
Declining invites
Not answering in class
Crying or tantruming
Freezing up, clinging, shrinking
Failing to speak in social situations
Refusing to go on playdates
Poor eye contact, mumbling
Staying home on weekends
Separation Anxiety Disorder

- Developmentally Inappropriate and excessive fear or anxiety concerning separation from attachment figures for more than 4 weeks
- Accompanied by distress with separating or anticipation of separating from home or attachment figures
- Persistent and excessive worry about losing major attachment figures or harm to them
- Persistent and excessive worry about experiencing an event causing separation
- Reluctance or refusal to be away, being alone, sleeping away
- Repeated nightmares involving separation themes
- Repeated complaints of physical symptoms when faced with separation
Rating Scales to Help

- Scared
- Clinical Correlation is always needed
- There are no tests that diagnose
- Preschool Anxiety Rating scale
Screen for Child Anxiety Related Emotional Disorders

- 41 items
- Studied for ages 8-18 year
- Takes about 10 minutes
- Parent and child versions
- Looks are various anxiety disorders
- Free!
Preschool Anxiety Scale

- Completed by parents
- 28 items
- 29th question is open ended
- Subscales
- Teacher version available
- Free

Below is a list of items that describe children. For each item, please circle the response that best describes your child. Please circle 0 if the item is very often true, 1 if the item is sometimes true, 2 if the item is seldom true, or 3 if it is not true at all (circle 0). Please answer all the items as well as you can, even if some do not seem to apply to your child.

1. Has difficulty sleeping/insomnia/hypersomnia
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

2. Wakes up anxious in the morning
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

3. Afraid of getting separated from parents or caregivers
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

4. Is very sensitive to noises
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

5. Has trouble sleeping due to worries
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

6. Is afraid of storms
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

7. Is afraid of being alone in the dark
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

8. Is afraid of separation
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

9. Is afraid of heights (e.g., stairs)
   - 0: Not True at All
   - 1: Seldom True
   - 2: Sometimes True
   - 3: Quite Often True
   - 4: Very Often True

10. Is afraid of the dark
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

11. Is afraid of certain people
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

12. Is afraid of being alone in certain places
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

13. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

14. Is afraid of being punished
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

15. Is afraid of whether a friend will happen to be there
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

16. Is afraid of whether a friend will happen to be there
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

17. Is afraid of being bullied
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

18. Is afraid of being teased
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

19. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

20. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

21. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

22. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

23. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

24. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

25. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

26. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

27. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

28. Is afraid of being left out
    - 0: Not True at All
    - 1: Seldom True
    - 2: Sometimes True
    - 3: Quite Often True
    - 4: Very Often True

www.scaswebsite.com
What to tell families

- It is not the child’s fault
- It is often not the family’s fault
- The anxious brain is hard-wired differently and kid needs a new set of tools
- Therapy is first line
- Medication is helpful and does not have to be life long
- Treating in childhood early is best. Kid brains are going through massive neurodevelopmental rearrangement through puberty and treatment with therapy and medications facilitates positive changes that can be long lasting.
More Psychoeducation

- Accommodation - Changes in parents behavior in order to reduce child’s distress.
- Try to help parents identify times where they may be enabling avoidance in an effort to reduce their child’s distress.
- Before parents try to stop accommodating, does child have enough skills to calm self and have neutral/positive experience in stressful situations?
Treatment Recommendations

• Psychotherapy
• Medication
Therapy

BEHAVIOR THERAPY

COGNITIVE BEHAVIOR THERAPY
What to tell families about therapy

With younger kids, parents should be getting the coaching to work on practicing relaxation skills with their child and working on exposures too.

There is often homework.

With older kids that can think about thinking, they can work on challenging their anxious thoughts, reappraise, replace. Parents should also be part of helping with exposures.

Therapy should be time limited 12-16 sessions, biweekly.
What Therapy Skills do they need?

- Identifying feelings
- Controlling feelings – learning various relaxation techniques
- Understanding how thoughts, feeling, and behaviors link up
- Learning to changes thoughts and behaviors
Therapy changes the brain

- Children build new connections
- Using higher cortical functioning like PFC to diminish response from limbic system
- Use it or lose it - skill sets acquired


Does cognitive behavioral therapy change the brain? A systematic review of neuroimaging in anxiety disorders Porto PR¹, Oliveira L, Mari J, Volchan E, Figueira I, Ventura P.
Therapy Manuals

- Coping Cat
- Think good Feel Good
Therapy

- Social effectiveness therapy for children
  - 12 week program
  - Group sessions
Psychopharmacology

- Selective Serotonin Reuptake Inhibitors are First Line
- Most evidence overall – fluoxetine and sertraline
- Fluoxetine first positive study dating back to 1994
- RUPP Anxiety Study
- Child/Adolescent Anxiety Multimodal Study (CAMS)
- Lots of evidence with fluoxetine – superior in large meta-analysis
- SSRIs better than SNRIs
- Improvement as early as 2 weeks and most improvement seen by 4 weeks
How does medication work?

- Not a specific neurotransmitter out of balance or chemical imbalance
- Medication that is effective is thought to exert effect through changes in expression of brain derived neurotrophic factor (BDNF)
- BDNF makes changes.
- Changes in gene expression that are thought to promote neurogenesis

<table>
<thead>
<tr>
<th>Medication</th>
<th>FDA Approved For</th>
<th>Pediatric Anxiety Off-Label Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escitalopram</td>
<td>MDD (ages 12 and older)</td>
<td>GAD, SeAD, SoAD, PD</td>
</tr>
<tr>
<td>*Fluoxetine</td>
<td>MDD (≥ 8 years old), OCD (≥ 7 years old), bipolar (≥ 10 years old)</td>
<td>PD, SeAD, SoAD, GAD</td>
</tr>
<tr>
<td>Fluvoxamine</td>
<td>OCD (≥ 8 years old)</td>
<td>SoAD, SeAD, PD, GAD</td>
</tr>
<tr>
<td>Sertraline</td>
<td>OCD (≥ 6 years old)</td>
<td>PD, SoAD, GAD, SeAD</td>
</tr>
<tr>
<td>Clomipramine</td>
<td>OCD (≥ 10 years old)</td>
<td>Anxiety</td>
</tr>
<tr>
<td>*Duloxetine</td>
<td>*GAD (≥ 7 years old)</td>
<td>MDD</td>
</tr>
</tbody>
</table>
Medication

What medication can help
• Reduce physical symptoms of anxiety
• Reduce emotional symptoms of anxiety

What medication cannot change
• Thinking patterns
• Avoidance Behaviors
<table>
<thead>
<tr>
<th>Medication</th>
<th>Initial child dose (age&lt;12; mg/ d)</th>
<th>Initial adolescent dose (age 12-17; mg/ d)</th>
<th>Target dose (mg/ d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citalopram</td>
<td>5 to 10</td>
<td>10</td>
<td>20 to 40</td>
</tr>
<tr>
<td>Escitalopram</td>
<td>2.5 to 5</td>
<td>5 to 10</td>
<td>10 to 20</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>5 to 10</td>
<td>10</td>
<td>20 to 40 (children), 40 to 60 (adolescents)</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>5 to 10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Sertraline</td>
<td>10 to 12.5</td>
<td>25</td>
<td>150</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>37.5</td>
<td>37.5</td>
<td>150</td>
</tr>
<tr>
<td><strong>Duloxetine</strong></td>
<td>30; increase to 60 after 2 weeks</td>
<td>30; increase to 60 after 2 weeks</td>
<td>30 to 60</td>
</tr>
</tbody>
</table>

Fluoxetine

My personal first line treatment for anxiety and mood disorders in children

Most studied, probably in all of psychiatry

Long half life

Available in liquid, tablet, and capsule

Insurance companies are not covering most tablets except 10mg tablets

For children under the age of 10 years of age, start at 5mg daily for 1 week, then increase to 10mg

For older children, 10 and up, start at 10mg daily for 1-2 weeks then increase to 20mg

Some families report benefit at 10mg. Usually try to get the dosage to 20mg.
Fluoxetine

- Side effects – difficulty sleeping, stomach aches and headaches (initially), vivid dreams, sexual side effects
- Uncommon side effects – increased urinary frequency and bed wetting, activation or disinhibition (often parents describing unusual risk taking behaviors, inattention, and hyperactivity)
- Black box warning
- Weight gain
Lexapro

• My personal second choice for anxiety and mood disorders
• No FDA indication for anxiety
• Available as a tablet and liquid
• Effective dosing range is 10-20mg
• If there has been good clinical benefit overall, can be increased above 20mg. Should check an EKG in these cases. This is related to prolonged QTc concerns with citalopram
• Side effects – similar to fluoxetine. Headaches, stomach aches, vivid dreams, activation/disinhibition, sexual side effects, somnolence

• Black Box Warning

• Weight gain questions

• Ok to take in evening or morning
Sertraline

- Well studied
- Available as tablets and liquid
- Starting dosing for younger kids – 12.5mg daily for 1-2 weeks, then increase to 25mg. Need to titrate to at 50mg for 4-6 weeks to determine benefit
- Starting dosing for older kids – 25mg daily for 1-2 weeks, then increase to 50mg daily.
- If any side effects during titration, slow down to 12.5mg increases
Sertraline

• Side effects – more GI upset (diarrhea and nausea), headaches, sleep difficulties, sexual side effects, fatigue/drowsiness
• Black box warning
• Weight gain
• When to take medication
Usefulness of liquid preparations

- Kids that cannot swallow pills
- Unfortunately flavors are not pleasant
- Sertraline dose well in orange juice
- Can be helpful to titrate dosage slowly in kids with sensitivity to SSRIs
Venlafaxine XR

- No liquid preparations, only tablets or capsules
- Start at 37.5mg daily for 2 weeks, then increase to 75mg daily
- Older adolescents can go up to adult doses 300mg/day
- Short half life, need really good compliance
- More side effects and serotonin withdrawal concerns
Venlafaxine ER

- Side effects can be more problematic or intense
- Common – headaches, nausea, insomnia, dizziness, sexual side effects, sweating, nervousness
- Hypertension
Duloxetine

- Only available as capsule
- Start at 30mg daily for at least two weeks
- Dosing between 30-60mg
- Side effects – nausea, dry mouth, headache, somnolence, fatigue, risk of activation

What to Tell Parents about Medication

- Anticipated benefits
- Risks – common SSRI side effects
- Black Box Warnings
Black Box warning

- Always discuss with families
- Review where the black box warning comes from
- Studies with anxiety disorders have not seen this trend
- Anxiety and depression are often comorbid

Augmentation?

- Not often needed
- Check for compliance with medication
- Any new stressors in the home or school
- Is patient engaged in therapy?
- What kind of therapy?
Benadryl and Hydroxyzine

- Mostly sedating medication
- Can have paradoxical reaction in younger kids and children with neurodevelopmental disabilities.
- Some potential use as a short term use sleep aide
Buspirone

- two studies with no difference with placebo
- two open label studies indicated improvement
- Usually reserve for use in teens
- Limited evidence
- Minimal side effects - lightheadedness


Buspirone in Children and Adolescents with Anxiety: A Review and Bayesian Analysis of Abandoned Randomized Controlled Trials.

Strawn JR, Mills JA, Cornwall GJ, Mossman SA, Varney ST, Keeshin BR, Croarkin PE.
Propranolol

- Can be used for performance anxiety situations
- Mostly limited to adolescents and older
- Start at 10mg 45 minutes before performance situation
- Avoid use in patients with asthma, certain cardiac conditions
Guanfacine IR and XR

- Minimal evidence but emerging
- Studies so far have been under-powered
- Decently tolerated – headaches, dizziness, stomach aches

Other medications

- Benzodiazepines – rarely useful, tolerance, disinhibition, abuse potential. Use on case by case basis. Example – recurrent vomiting associated with anxiety provoking situation
- Gabapentin – most studies in children involve pre-op anxiety, no solid evidence
- Pregabalin – most studies in adults
- Risperidone – most evidence in OCD
When do you stop medication?

- Studies suggest that continuing medication for 9-12 months after child is not longer clinical impaired reduces return of symptoms.
- Kids do best off medication if they have acquired good skills in therapy.
- Some kids want to stay on medication or will return to medication after trial period off.
When to Refer?

Diagnostic Clarification

Medication concerns – efficacy, dosage, side effects. When deviating from first line evidence based treatment, good time to refer.

Family needing more psycho-education and support

Anytime!
Questions
Helpful resources

• Books
  • The Whole Brain Child
  • Freeing your child from anxiety

• Websites
  • www.anxietycanada.com
  • www.aacap.org Facts for Families and Practice Parameters for Clinicians
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- 319-384-8813
References


references


• https://www.mcgill.ca/brain/

• www.anxietycanada.com