Psychopharmacology: Managing Anxiety

Lance Feldman, MD, FAPA, MBA, BSN

Division Chief, Pediatric Behavioral Health, Greenville Health System
Affiliate Clinical Assistant Professor, University of South Carolina School of Medicine Greenville
Diplomate, American Board of Psychiatry & Neurology, Psychiatry
Diplomate, American Board of Psychiatry & Neurology, Child & Adolescent Psychiatry
Diplomate, American Board of Preventive Medicine, Addiction Medicine
Disclosures

• None

(We may, however, be discussing some possible off label medication uses…)
Outline

• Introduction
• Anxious?
• Treatment
  – Therapy
  – Medication
  – Behavioral
• Outcomes
Why have anxiety?

- “Don’t talk to strangers”
- “Look both ways before you cross the street”
- “Eat your vegetables”
- “Starving children”
Why Panic?

Statistics

• Overall ~25 percent 12 month prevalence
  – Generalized anxiety disorder — ~2% with girls 2.4 X boys (point prevalence)
  – Social anxiety disorder — ~11-15% lifetime prevalence
  – Panic disorder — ~1% childhood prevalence
  – Agoraphobia — up to 4% in adolescence
  – Specific phobias – up to 15% 12 month prevalence
  – Separation anxiety disorder — 4% lifetime prevalence
  – Selective mutism — 1% prevalence
Mean Age of Onset

http://emedicine.medscape.com/article/286227-overview#a4
Risk Factors

• Temperament
• Attention bias
• Familial aggregation
• Social
• Parenting Style
The Anxiety Evaluation:

ANXIETY GIRL!

able to jump to the worst conclusion in a single bound!

http://www.hippoquotes.com/anxiety-quotes
Common Presenting Symptoms

- School avoidance
- Somatic complaints
- Sleep changes
- Behavioral changes
- Appetite changes
Patients with anxiety, worry, “nerves” or with multiple, poorly explained physical symptoms

Evaluate for medical illnesses.

Evaluate use of medications (including over-the-counter medications and herbal remedies).

Evaluate for substance use or abuse (e.g., alcohol, caffeine, nicotine) and prescription medications abuse (e.g., opiates, benzodiazepines).

Evaluate for presence of social supports, recent or chronic stressors and impairments in daily activities.

Evaluate for symptoms associated with worry (see Table 1).

Remove substances of abuse and/or change medications.

Evaluate for panic attacks. Evaluate for symptoms of major depression.

Yes

No

Yes

No

Treat for panic disorder.

Treat for GAD.*

Treat for major depression.*

Treat for GAD.*

*—If some symptoms of major depression and GAD are present but do not meet the full criteria for either, treat for mixed anxiety-depressive disorder.

Rule Outs:

- Hyperthyroidism
- Cushing’s Disease
- Mitral Valve Prolapse
- Carcinoid Syndrome
- Pheochromocytoma
- Medications: steroids, OTC meds, SSRIs, digoxin, thyroxine, theophylline
Additional Work-Up:

- CBC
- CMP
- TSH / T4 (Cascade)
- Urinalysis
- Urine Drug Screen
Screening Tools:

- SCARED
- Hamilton – A
- CBCL
- CY-BOCS
Anxiety Disorders

- Generalized Anxiety Disorder
- (Obsessive Compulsive Disorder)
- Social Anxiety Disorder
- Separation Anxiety Disorder
- Panic Disorder (w/ or w/o agoraphobia)
- Agoraphobia w/o panic disorder
- Specific Phobia
Generalized Anxiety Disorder (GAD)

MY ANXIETIES HAVE ANXIETIES.

http://www.anxietytherapysandiego.com/blog/
GAD DSM5 Diagnosis

• The presence of excessive anxiety and worry about a variety of topics, events, or activities. Worry occurs more often than not for at least 6 months and is clearly excessive.

• The worry is experienced as very challenging to control
The anxiety and worry is associated with at least 3 of the following physical or cognitive symptoms (*In children, only 1 symptom is necessary for a diagnosis of GAD.):

- Edginess or restlessness.
- Tiring easily; more fatigued than usual.
- Impaired concentration or feeling as though the mind goes blank.
- Irritability (which may or may not be observable to others).
- Increased muscle aches or soreness.
- Difficulty sleeping (due to trouble falling asleep or staying asleep, restlessness at night, or unsatisfying sleep).
Making a GAD Diagnosis

• SCARED
• Hamilton-A (Ham-A)
• CBCL
Screen for Child Anxiety Related Disorders (SCARED)
Child Version—Pg. 1 of 2 (To be filled out by the CHILD)

Name: _____________________________
Date: _____________________________

**Directions:**
Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or “Very True or Often True” for you. Then for each sentence, fill in one circle that corresponds to the response that seems to describe you for the last 2 months.

<table>
<thead>
<tr>
<th></th>
<th>0 Not True or Hardly Ever True</th>
<th>1 Somewhat True or Sometimes True</th>
<th>2 Very True or Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I feel frightened, it is hard to breathe.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>2. I get headaches when I am at school.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>3. I don’t like to be with people I don’t know well.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>4. I get scared if I sleep away from home.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>5. I worry about other people liking me.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>6. When I get frightened, I feel like passing out.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>7. I am nervous.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>8. I follow my mother or father wherever they go.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>9. People tell me that I look nervous.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>10. I feel nervous with people I don’t know well.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>11. I get stomachaches at school.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>12. When I get frightened, I feel like I am going crazy.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>13. I worry about sleeping alone.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>14. I worry about being as good as other kids.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>15. When I get frightened, I feel like things are not real.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>16. I have nightmares about something bad happening to my parents.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>17. I worry about going to school.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>18. When I get frightened, my heart beats fast.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>19. I get shaky.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>20. I have nightmares about something bad happening to me.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

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Screen for Child Anxiety Related Disorders (SCARED)
CHILD Version—Page 2 of 2 (to be filled out by the CHILD)

<table>
<thead>
<tr>
<th></th>
<th>0 Not True or Hardly Ever True</th>
<th>1 Somewhat True or Sometimes True</th>
<th>2 Very True or Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I worry about things working out for me.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>22. When I get frightened, I sweat a lot.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>23. I am a worrier.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>24. I get really frightened for no reason at all.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>25. I am afraid to be alone in the house.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>26. It is hard for me to talk with people I don’t know well.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>27. When I get frightened, I feel like I am choking.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>28. People tell me that I worry too much.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>29. I don’t like to be away from my family.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>30. I am afraid of having anxiety (or panic) attacks.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>31. I worry that something bad might happen to my parents.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>32. I feel shy with people I don’t know well.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>33. I worry about what is going to happen in the future.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>34. When I get frightened, I feel like throwing up.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>35. I worry about how well I do things.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>36. I am scared to go to school.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>37. I worry about things that have already happened.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>38. When I get frightened, I feel dizzy.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport).</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don’t know well.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>41. I am shy.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
SCORING:
A total score of ≥ 25 may indicate the presence of an Anxiety Disorder. Scores higher than 30 are more specific. TOTAL =
A score of 7 for items 1, 6, 9, 12, 15, 18, 19, 22, 24, 27, 30, 34, 38 may indicate Panic Disorder or Significant Somatic Symptoms. PN =
A score of 9 for items 5, 7, 14, 21, 23, 28, 33, 35, 37 may indicate Generalized Anxiety Disorder. GD =
A score of 5 for items 4, 8, 13, 16, 20, 25, 29, 31 may indicate Separation Anxiety SOC. SP =
A score of 8 for items 3, 10, 26, 32, 39, 40, 41 may indicate Social Anxiety Disorder. SC =
A score of 3 for items 2, 11, 17, 36 may indicate Significant School Avoidance. SH =

For children ages 8 to 11, it is recommended that the clinician explain all questions, or have the child answer the questionnaire sitting with an adult in case they have any questions.
Obsessive Compulsive Disorder (OCD)

I have CDO

It's a lot like OCD but all the letters are in alphabetical order as they should be!
• Presence of obsessions, compulsions or both.
  – Obsessions:
    • Recurrent and persistent thoughts, urges or images that are experienced, at some time during the disturbance, as intrusive and unwanted, and cause marked anxiety or distress
    • The individual attempts to ignore or suppress such thoughts, urges or images, or to neutralize them with some other thought or action (i.e., by performing a compulsion)
OCD DSM5 Diagnosis

– Compulsions:

• Repetitive behaviors or mental acts that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly

• The behaviors or mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent, or are clearly excessive.

  – Note: Young children may not be able to articulate the aims of these behaviors or mental acts
OCD DSM5 Diagnosis

• Obsessions and/or Compulsions >1 hour / day or cause clinically significant distress or impairment

• Specifications:
  – With good or fair insight
  – With poor insight
  – With absent insight / delusional beliefs
  – Tic-related
Making an OCD Diagnosis...

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>

**CY-BOCS OBSESSIONS CHECKLIST**
Check all items that apply (Item marked "*" may or may not be OCD phenomena.)

<table>
<thead>
<tr>
<th>Current</th>
<th>Past</th>
</tr>
</thead>
</table>

- **Contamination Obsessions**
  - Concern with dirt, germs, certain illnesses (e.g., AIDS)
  - Concerns or disgust with bodily waste or secretions (e.g., urine, feces, saliva)
  - Excessive concern with environmental contaminants (e.g., asbestos, radiation, toxic waste)
  - Excessive concern with household items (e.g., cleaners, solvents)
  - Excessive concern about animals/sects
  - Excessively bothered by sticky substances or residues
  - Concerned will get ill because of contaminant
  - Concerned will get others ill by spreading contaminant (aggressive)
  - No concern with consequences of contamination other than how it might feel
  - Other (Describe)

- **Aggressive Obsessions**
  - Fear might harm self
  - Fear might harm others
  - Fear harm will come to self
  - Fear harm will come to others (may be because something child did or did not do)
  - Violent or horrific images
  - Fear of blurt out obsessions or insults
  - Fear of doing something else embarrassing
  - Fear will act on unwanted impulses (e.g. to stab a family member)
  - Fear will steal things
  - Fear will be responsible for something else terrible happening (e.g. fire, burglary, flood)
  - Other (Describe)

- **Sexual Obsessions**
  - [Are you having any sexual thoughts? If yes, are they routine or are they repetitive thoughts that you would rather not have or find disturbing? If yes, are they?]
  - Forbidden or perverse sexual thoughts, images, impulses
  - Content involves homosexuality
  - Sexual behavior towards others (Aggressive)
  - Other (Describe)

- **Hoard/Saving Obsessions**
  - Fear of losing things
  - Other (Describe)

- **Magical Thoughts/Superstitions Obsessions**
  - Lucky/unlucky numbers, colors, words
  - Other (Describe)

**Somatic Obsessions**
- Excessive concern with illness or disease
- Excessive concern with body part or aspect of appearance (e.g., dysmorphic phobia)
- Other (Describe)

**Religious Obsessions (Scrupulosity)**
- Excessive concern or fear of offending religious objects (God)
- Excessive concern with right/wrong, morality
- Other (Describe)

**Miscellaneous Obsessions**
- The need to know or remember
- Fear of saying certain things
- Fear of not saying just the right thing
- Intrusive (non-violent) images
- Intrusive sounds, words, music, or numbers
- Other (Describe)

**TARGET SYMPTOM LIST FOR OBSESSIONS**

<table>
<thead>
<tr>
<th>Obsessions (Describe, listing by order of severity, with #1 being the most severe, #2 the second most severe, etc.):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>
Social Anxiety Disorder (Social Phobia)

• Marked fear or anxiety about social situations
  – Note: in children, the anxiety must occur in peer settings and not just during interactions with adults.

• Act in a way to show anxiety and be negatively evaluated

• Social situations almost always provoke fear or anxiety
  – Note: in children the fear or anxiety may be expressed by crying, tantrums, freezing, clinging, shrinking or failing to speak in social situations
Separation Anxiety Disorder

• Developmentally inappropriate and excessive fear or anxiety concerning separation, at least 3 of the following:
  – Excessive distress when separated
  – Excessive worry about losing figures
  – Worry about untoward event
  – Reluctance or refusal to go out
  – Fear of being alone
  – Reluctance or refusal to sleep away from home
  – Repeated nightmares about separation
  – Repeated complaints of physical symptoms when separated
Panic Disorder

• “Recurrent unexpected panic attacks” that peak within minutes:
  – Palpitations, sweating, trembling, shaking, shortness of breath, choking, chest pain, nausea, dizzy, faint, chills, heat, paresthesias, derealization, depersonalization, fear
  – At least 1 month of persistent concern or worry about additional attacks
Agoraphobia

- Marked fear or anxiety about 2+ situations:
  - Using public transportation
  - Being in open spaces
  - Being in enclosed places
  - Standing in line or being in a crowd
  - Being outside of the home alone
Specific Phobia

- Marked fear or anxiety about a specific object or situation
- Almost always provokes immediate fear or anxiety
- Actively avoided
- Code based on phobic stimulus: animal, natural environment, fear of blood, fear of injections and transfusions, fear of other medical care, fear of injury, situational, other (…e.g. loud sounds or costumed characters)
Other Anxiety Disorders:

- Selective Mutism
- Hoarding Disorder
- Trichotillomania
- Excoriation (Skin-Picking) Disorder
Don’t worry, I got your back!

https://quotesgram.com/funny-quotes-about-anxiety/
Anxiety Treatment

• Medication
• Therapy
• Behavioral Approaches
You are about to EXCEED the limits of my Medication

http://quotesgram.com/img/funny-xanax-quotes-anxiety/184277/
Prescribing Pearls

- Chlorpromazine (Thorazine) – FDA approved ages >6 months for schizophrenia / psychosis
- CDC – “the long term effects of ADHD medicine on young children are not known”
- FDA – Pregnancy Category C
  - “Methylphenidate has been shown to have teratogenic effects in rabbits when given in doses of 200mg/kg/day”
Pathophysiology of Anxiety

- Norepinephrine
- Dopamine
- Serotonin
- GABA

http://emedicine.medscape.com/article/286227-overview#a4
• Serotonin
• Norepinephrine
• Dopamine

## FDA Approved Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand Name</th>
<th>Daily Dosage Range</th>
<th>Indication (Age Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escitalopram</td>
<td>Lexapro®</td>
<td>10-20 mg</td>
<td>Major depressive disorder (≥12)</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>Prozac®</td>
<td>10-20 mg</td>
<td>Depression (8-18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-60 mg</td>
<td>Obsessive-compulsive disorder (OCD) (7-17)</td>
</tr>
<tr>
<td>Fluvoxamine</td>
<td>Luvox®</td>
<td>25-200 mg</td>
<td>OCD (8-17)</td>
</tr>
<tr>
<td>Sertraline</td>
<td>Zoloft®</td>
<td>25-200 mg</td>
<td>OCD (6-17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand Name</th>
<th>Daily Dosage Range</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Elavil®</td>
<td>25-100 mg</td>
<td>Depressive disorders (≥12)</td>
</tr>
<tr>
<td>Clomipramine</td>
<td>Anafranil®</td>
<td>25-100 mg</td>
<td>OCD (≥10)</td>
</tr>
<tr>
<td>Imipramine</td>
<td>Tofranil®</td>
<td>30-100 mg</td>
<td>Depression (≥12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25-75 mg</td>
<td>Enuresis (≥6)</td>
</tr>
</tbody>
</table>

http://mhc.cpn.org/doi/full/10.9740/mhc.n145473
Anxiolytics

- SSRIs
- TCAs
- SNRIs
- Benzodiazepines
- Buspirone (Buspar)
- Hydroxyzine (Vistaril)
Selective Serotonin Reuptake Inhibitors (SSRIs)

SSRIs block the re-uptake of serotonin, which increases the amount present in the synapse and magnifies its effects.

http://web.stanford.edu/group/hopes/cgi-bin/hopes_test/ssris/
SSRIs

- Fluoxetine (Prozac)
- Paroxetine (Paxil)
- Citalopram (Celexa)
- Escitalopram (Lexapro)
- Sertraline (Zoloft)
- Fluvoxamine (Luvox)
Tricyclic Antidepressants (TCAs)

TCAs

- Amitriptylene
- Nortriptylene
- Imipramine
- Clomipramine
- Desipramine
Selective Norepinephrine Reuptake Inhibitors (SNRIs)

- Duloxetine (Cymbalta)
- Venlafaxine (Effexor)
- Desvenlafaxine (Pristiq)
- Mirtazapine (Remeron)*
- Atomoxetine (Strattera)*
Benzodiazepines

- Alprazolam (Xanax)
- Chlordiazepoxide (Librium)
- Clonazepam (Klonopin)
- Diazepam (Valium)
- Lorazepam (Ativan)
- Oxazepam (Serax)
- Temazepam (Restoril)
Benzodiazepine Factoids

• GABAa Receptor
• Abuse: Alprazolam > Clonazepam > Lorazepam > Diazepam
• LOT Glucoronidation
Benzodiazepine Equivalent Dosing

- Alprazolam 0.5mg
- Clonazepam 0.5mg
- Diazepam 10mg
- Lorazepam 1mg
Buspirone (Buspar)

- 5HT1A agonist

Buspirone is a full agonist at presynaptic 5HT1A receptors

Buspirone is a partial agonist at postsynaptic 5HT1A receptors
Hydroxyzine (Vistaril, Atarax)

- Anti-histamine
- 10-100mg/day (age, weight) in 4 divided doses
- SEs: sedation / drowsiness
Medication Research

- Sertraline and Venlafaxine most effective
- Cochrane Review: Fluoxetine, fluvoxamine, paroxetine, sertraline, and venlafaxine were more efficacious than placebo.
- Fluvoxamine likely most efficacious but lots of interactions
Medication Considerations

• No FDA approved medications for Generalized Anxiety Disorder in Children and Adolescents!!!!!!

• Use Bupropion (Wellbutrin) with caution
Pharmacotherapy for anxiety disorders in children and adolescents

<table>
<thead>
<tr>
<th>Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selective serotonin reuptake inhibitors (SSRIs)</strong></td>
</tr>
<tr>
<td><strong>Fluoxetine</strong></td>
</tr>
<tr>
<td><strong>Fluvoxamine</strong></td>
</tr>
<tr>
<td><strong>Mirtazapine</strong></td>
</tr>
<tr>
<td><strong>Serotonin norepinephrine reuptake inhibitor (SNRI)</strong></td>
</tr>
<tr>
<td><strong>Venlafaxine extended-release (ER)</strong></td>
</tr>
<tr>
<td><strong>Tricyclic antidepressants (TCA)</strong></td>
</tr>
<tr>
<td><strong>Clomipramine</strong></td>
</tr>
<tr>
<td><strong>Imipramine</strong></td>
</tr>
<tr>
<td><strong>Benzodiazepines</strong></td>
</tr>
<tr>
<td><strong>Clonazepam</strong></td>
</tr>
<tr>
<td><strong>Lorazepam</strong></td>
</tr>
</tbody>
</table>

**Initial daily dose**

- Fluoxetine: Children 6 to 20 mg; Adolescents: 10 mg
- Fluvoxamine: 35 to 50 mg at bedtime
- Mirtazapine: 12.5 to 25 mg
- Venlafaxine: 5 to 10 mg
- Clomipramine: 25 mg
- Imipramine: 10 to 25 mg
- Clonazepam: 0.25 to 0.5 mg
- Lorazepam: 0.25 to 0.5 mg

**Suggested dose titration based upon response**

- Fluoxetine: After 7 days increase daily dose to 25 mg; then after 4 and 8 weeks increase daily dose by 25 mg, if needed
- Fluvoxamine: Increase daily dose by 25 mg (SAME) or 25 to 50 mg (addendum) after a minimum of 7 days, if needed
- Mirtazapine: Increase daily dose by 12.5 mg (SAME) or 31.25 mg (addendum) after a minimum of 7 days, if needed
- Venlafaxine: Increase daily dose by 5 mg (SAME) or 10 mg (addendum) after a minimum of 7 days, if needed
- Clomipramine: Increase daily dose by 25 mg after a minimum of 7 days, if needed; gain in dudged doses with meals and bedtime
- Imipramine: Increase daily dose by 25 mg after a minimum of 7 days, if needed; gain in dudged doses with meals and bedtime
- Clonazepam: 0.25 to 0.5 mg
- Lorazepam: 0.25 to 0.5 mg

**Maintenance daily dose range**

- Fluoxetine: 10 to 80 mg
- Fluvoxamine: 50 to 300 mg
- Mirtazapine: 50 to 200 mg
- Venlafaxine: 10 to 60 mg
- Clomipramine: 150 to 225 mg
- Imipramine: 25 to 250 mg (2 to 4 mg/kg per day); doses <3.75 mg/kg per day should be used cautiously
- Clonazepam: 0.1 to 0.5 mg
- Lorazepam: 0.25 to 0.5 mg

**Selected characteristics**

- Fluoxetine: Prolonged half-life; Metabolized by and inhibits CYP2D6
- Fluvoxamine: High affinity for 5-HT; Metabolized by CYP2C19 and 2C19
- Mirtazapine: Increased affinity for histamine; Metabolized by CYP2D6 and 2C19
- Venlafaxine: Lower affinity than other SNRIs; Metabolized by CYP2D6; Inhibits CYP3A4 with larger doses
- Clomipramine: Short half-life; High affinity for 5-HT; Metabolized by and inhibits CYP2D6; May cause weight gain
- Imipramine: Decreased in dose with increased serum level; Metabolized by CYP2D6 and 3A4; Prolongation of QT interval

**Contraindications**

- Fluoxetine: EKG abnormalities; Metabolized by and inhibits CYP2D6
- Fluvoxamine: EKG abnormalities; Metabolized by CYP2C19 and 2C19
- Mirtazapine: EKG abnormalities; Metabolized by CYP2D6 and 2C19
- Venlafaxine: EKG abnormalities; Metabolized by CYP2D6 and 3A4
- Clomipramine: EKG abnormalities; Metabolized by CYP2D6 and 3A4
- Imipramine: EKG abnormalities; Metabolized by CYP2D6 and 3A4

**Dosing and monitoring**

- Fluoxetine: Dose may be increased to 80 mg per day; doses >3.75 mg/kg per day are not recommended in children.
- Fluvoxamine: Dose may be increased to 300 mg per day; doses >3.75 mg/kg per day are not recommended in children.
- Mirtazapine: Dose may be increased to 200 mg per day; doses >7.5 mg/kg per day are not recommended in children.
- Venlafaxine: Dose may be increased to 250 mg per day; doses >2 mg/kg per day are not recommended in children.
- Clomipramine: Dose may be increased to 250 mg per day; doses >2 mg/kg per day are not recommended in children.
- Imipramine: Dose may be increased to 225 mg per day; doses >1.5 mg/kg per day are not recommended in children.

**References**

CAMS Trial

- Child/Adolescent Anxiety Multimodal Study (CAMS)
- 488 participants with *DSM-IV* separation, generalized, or social anxiety disorder
- randomized to 12 weeks of cognitive-behavioral therapy (CBT), sertraline (SRT), CBT+SRT (COMB), or medication management/pill placebo (PBO).
- Responders attended 6 monthly booster sessions in their assigned treatment arm; youth in COMB and SRT continued on their medication throughout this period.
- Efficacy of COMB, SRT, and CBT (n = 412) was assessed at 24 and 36 weeks post randomization.
- Youth randomized to PBO (n = 76) were offered active CAMS treatment if nonresponsive at week 12 or over
CAMS Results
Complementary & Alternative Medications

- Omega 3s
- Chamomile
- L-theanine (green tea)
- Hops
- Valerian
- Lemon Balm
- Passionflower
- Lavender

http://www.health.com/health/gallery/0,,20669377,00.html#.
CBT for Anxiety

Anxiety-Provoking Situation

Physiological
- Increased heart rate
- Muscle tension
- Sweating, blushing
- Dizziness
- Nausea or stomach ache

Cognitive
- “What ifs?”
- Worries about physiological symptoms
- Worries about anxiety-provoking situation

Emotional
- Fear, dread, panic
- Frustration, anger, disappointment, sadness

Behavioural
- Reduced performance due to anxiety
- Avoidance

Common Cognitive Distortions:

- **all-or-nothing thinking**: viewing the world in absolute, black-and-white terms
- **disqualifying the positive**: rejecting positive experiences by insisting they “don’t count” for some reason
- **automatic negative reactions**: having habitual, scolding thoughts such as, “This is all my fault.”
- **magnification or minimization**: the importance of an event
- **overgeneralization**: drawing overly broad conclusions from a single event
- **personalization**: taking things too personally or feeling actions are specifically directed at you
- **mental filter**: picking out a single negative detail and dwelling on it exclusively so that the vision of reality becomes darkened
Other Therapy Approaches:

• Exposure and Response Prevention
• Guided Imagery
• Mindfulness
Behavioral Approaches

• Lifestyle Modifications
  – Sleep
  – Diet
  – Exercise / Yoga
  – Stress
  – Relationships / Family Dynamics
Treatment Choices

- Low intensity vs. High intensity
- Co-morbidities
- Family history
- Family functioning
- Goals of treatment
Outcomes

- ~50% sustained remission rate
- “Gateway disorders”
- Decreased substance use and depression in adulthood
Questions?

The best use of imagination is creativity. The worst use of imagination is anxiety.

Deepak Chopra