Anxiety in Pediatrics: Quick Facts

Many anxieties and fears are a transient, expected, and developmentally appropriate part of childhood (e.g., separation anxiety);[1] however, serious illness may elicit emotional responses and resulting persistent and excessive behaviors.

Anxiety in the pediatric population may manifest differently than in adults and is often hard to characterize. Children may not have the language or cognitive skills to adequately describe what they are feeling. Somatic symptoms (e.g., abdominal pain, racing heart, intense and often sudden nausea, dizzying or painful headache) and behavior changes (e.g., avoidant behavior, tantrums) are seen with anxiety across developmental stages.[2]

While patients with serious illness may have apprehensions about death, they do not all progress to an anxiety-related disorder diagnosis. Symptoms are treated when they interfere with the function or quality of life. First-line medication therapy often includes benzodiazepines (e.g., lorazepam). Also helpful are selective serotonin reuptake inhibitors (SSRIs) (e.g., sertraline) and serotonin norepinephrine reuptake inhibitors (SNRIs) (e.g., venlafaxine) for anxiety-related disorders or chronic symptoms that are refractory to benzodiazepines.[3]

Nonpharmacological Therapy [3,4]

Child life specialists offer emotional support and teach about medical procedures in a developmentally appropriate way. Their interventions can help ease anxiety.[5] Other nonpharmacological therapies include:

- Employing cognitive behavioral therapy (CBT), a type of psychotherapy that can help teach problem solving skills. CBT also focuses on mechanisms to change behavior patterns.[6]
- Recommending exercise/physical therapy as it positively affects quality of life. Exercise may also decrease worry.
- Assessment of lifestyle factors such as caffeine intake, sleep routine, and medications that contribute to increased anxiety (e.g., oral corticosteroids).

Pharmacotherapy [3,4,7-16]

Decisions are guided by life expectancy and anxiety acuity (i.e., anxiety-related disorder, chronic or acute symptoms):

- Consider SSRIs & SNRIs for anxiety-related disorders (generalized anxiety, obsessive compulsive, panic, social anxiety) and chronic symptoms, especially with concomitant depression; therapeutic effects can take 4 to 8 weeks to manifest.[7]
    - All antidepressants carry a black box warning for increased risk of suicidality in children.
    - Fluoxetine has been the most extensively studied so it has the largest evidence base.
    - Duloxetine and venlafaxine delayed/extended-release may be useful for concomitant nerve pain.
    - When stopping an SSRI or SNRI, decrease the dose gradually (e.g., 25 to 50 percent weekly) to avoid discontinuation symptoms,[16] including fatigue, nausea/vomiting, dizziness, sweating, and:
        - For SSRIs: abdominal pain, light-headedness, tremor, chills, and incoordination.[14]
        - For SNRIs: headache, insomnia, paresthesia, irritability, diarrhea, and anxiety.[14]
    - Common SSRI side effects include disinhibition, agitation, and worsening of anxiety symptoms as well as headaches, gastric distress, and sleep disturbance. Some children receiving SNRIs have reported weight gain, elevated cholesterol, and hypertension.[16]
- For limited prognoses (2 months or less) and acute symptoms, consider the benzodiazepine, lorazepam; it is commonly used, has a short duration of action (4 to 12 hours in children) and can be dosed frequently. [4]
    - Clonazepam and diazepam are useful for anxiety-related disorders and chronic symptoms; they may accumulate due to a long duration of action, causing side effects and toxicity, so it's important to use the smallest, most effective dose and monitor cautiously.
    - Alprazolam, oxazepam, and triazolam are not ideal for anxiety as their efficacy wanes quickly and there is an increased risk of rebound anxiety and withdrawal.[3]
    - Taper doses prior to discontinuation for patients with consistent use at a moderate or high dose.
    - Common side effects include sedation, delirium, confusion, and gait instability.

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Medication	Initial Dosing	Considerations
SSRIs		
Escitalopram (Lexapro®) – *Oral tablet, 5mg, 10mg, 20mg* – *Oral solution, 5mg/5ml*	For GAD in children aged ≥ 7 years: 5 to 10mg PO daily Maintenance dose: 10 to 20mg daily	Indications: MDD, GAD Off-label: SAD
Fluoxetine (Prozac®) – *Oral capsule, 10mg, 20mg, 40mg* – *Oral solution, 20mg/5ml*	Children: 5 to 10mg PO daily Adolescents: 10mg PO daily [a] After 7 days may titrate to 20mg; may further titrate after 4 to 8 weeks if needed Maintenance dose: 10 to 80mg daily	Indications: MDD, OCD Off-label use: GAD, PD, SAD
Sertraline (Zoloft®) – *Oral tablet, 25mg, 50mg, 100mg* – *Oral solution,* 20mg/ml	For children aged ≥ 6 years: 12.5 to 25mg PO daily Maintenance dose: 50 to 200mg daily	Indication: OCD Off-label use: GAD, MDD, PD, SAD
SNRIs		
Duloxetine (Cymbalta®) – *Oral delayed-release capsule, 20mg, 30mg, 40mg, 60mg*	For children aged ≥ 7 years: 30mg PO daily Maintenance dose: 30 to 60mg daily	Indication: GAD
Venlafaxine ER (Effexor® XR) [b] – *Oral extended-release tablet/capsule, 37.5mg, 75mg, 150mg* – *Oral extended-release tablet, 225mg* – *Oral regular-release tablet, 25mg, 37.5mg, 50mg, 75mg, 100mg*	For GAD in children aged ≥ 6 years: 37.5mg PO daily May titrate after 7 days if needed Maintenance dose: 75 to 225mg daily	Off-label use: GAD, MDD, SAD
Benzodiazepines [c,d]		
Lorazepam (Ativan®) – *Oral tablet, 0.5mg, 1mg, 2mg* – *Oral solution, 2mg/ml* – *Solution for injection, 2mg/ml, 4mg/ml*	0.025 to 0.05 mg/kg PO/SL/PR/IV/SQ every 6 hours PRN Max dosing: 2mg/dose	Indications: Anxiety disorders, short-term relief of anxiety symptoms
Diazepam (Valium®) – *Oral tablet, 2mg, 5mg, 10mg* – *Oral solution, 5mg/5ml, 5mg/ml* – *Solution for injection, 5mg/ml*	0.04 to 0.2 mg/kg PO every 6 to 12 hours PRN OR 1 to 2.5mg PO 3 to 4 times a day PRN 0.04 to 0.2 mg/kg IV every 2 to 4 hours PRN Max dosing: – Children aged ≤ 5 years: 5mg/dose – Children aged > 5 years: 10mg/dose	Indications: Anxiety disorders Off-label use: Chronic anxiety symptoms
Clonazepam (Klonopin®) – *Oral tablet, 0.5mg, 1mg, 2mg* – *Oral disintegrating tablet, 0.125mg, 0.25mg, 0.5mg, 1mg, 2mg*	0.005 to 0.01 mg/kg PO every 8 to 12 hours PRN Max dosing: – Children aged ≤ 10 years: 0.1-0.2mg/kg/day – Children aged > 10 years: 20mg/day	Off-label use: PD, anxiety disorders, chronic anxiety symptoms

Abbreviations: *GAD=generalized anxiety disorder, MDD=major depressive disorder, OCD=obsessive compulsive disorder, PD=panic disorder, SAD=social anxiety disorder, PRN=as needed*

[a] *Adolescence is the time between childhood and early adulthood, typically starting at 10 years of age.*

[b] *XR formulation, not regular-release, cited in literature.*

[c] *Use clinical judgment with weight-based dosing in pediatrics - using certain pediatric weights may exceed the initial dosing recommendations used in adults.*

[d] *Dosing recommendations are for anxiety indications only. Dosing for seizure control may vary.*

Citations

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