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## GUIDELINE 7

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# Psychopharmacotherapy for Children and Adolescents

### Description

There are few controlled trials to guide practitioners and a sparse literature supporting medication use in childhood PTSD. Medication may play a role in targeting specific posttraumatic stress disorder (PTSD) symptoms and associated disorders and in helping to improve functioning in day-to-day life. A reasonable first approach in highly symptomatic children is to begin with a broad-spectrum agent, such as a selective serotonin reuptake inhibitor (SSRI), which should target anxiety, mood, and reexperiencing symptoms. Adrenergic agents, attention-deficit/hyperactivity disorder (ADHD) medications, mood stabilizers, or atypical neuroleptics, used either alone or in combination with a SSRI, may be useful interventions to target severe symptoms and/or comorbid conditions. Reduction in even one disabling symptom through pharmacotherapy may have a positive ripple effect on a child's overall functioning.

### General Strength of the Evidence

There are few well-conducted, controlled trials of medication treatments of PTSD in childhood. The scant literature is not of sufficient rigor to calculate comparison effect sizes. The following is the strength of evidence for specific medications.

### ***Adrenergic Agents (Clonidine, Guanfacine, Propranolol—Levels B, C, E)***

The alpha-2 agonists clonidine and guanfacine and the beta-antagonist propranolol reduce sympathetic tone and may be effective in treating symptoms of hyperarousal, impulsivity, activation, sleep problems, and nightmares seen in PTSD. Clonidine, in relatively low doses, has been shown in open-label trials to reduce anxiety and arousal, and to improve concentration, mood, and behavioral impulsivity. Guanfacine has been helpful in reducing PTSD-associated nightmares. Propranolol may reduce arousal symptoms in survivors of childhood sexual abuse.

Because they reduce central nervous system (CNS) adrenergic tone target reexperiencing and hyperarousal symptoms, adrenergic agents are a rational treatment strategy in PTSD. Additionally, the alpha-2 adrenergic agents may be more effective than the psychostimulants for ADHD symptoms in maltreated or sexually abused children with PTSD.

### ***Dopaminergic Agents (Risperidone, Quetiapine—Levels E, F)***

Uncontrolled trials of children with PTSD and high rates of psychiatric comorbidity (e.g., bipolar disorder) have indicated remission of PTSD symptoms with risperidone treatment. Case series juvenile justice reports involving children with PTSD indicated that quetiapine (50–200 mg/day) provided significant improvements in dissociation, anxiety, depression, and anger symptoms over the 6-week treatment period. With scant evidence as to their utility in PTSD symptoms per se, the atypical neuroleptics are currently reserved for patients with refractory PTSD or for those who exhibit paranoid behavior, parahallucinatory phenomena or intense flashbacks, self destructive behavior, explosive or overwhelming anger, or psychotic symptoms.

### ***Serotonergic Agents (Fluoxetine, Sertraline, Citalopram—Levels A, B)***

Perhaps the best evidence is for SSRIs in pediatric PTSD. In children, SSRIs are approved for use in depression (fluoxetine) and in obsessive–compulsive disorder (OCD; fluoxetine, sertraline, and fluvoxamine). SSRIs may be useful in children with PTSD because of the variety of symptoms associated with serotonergic dysregulation, including anxiety, depressed mood, obsessional thinking, compulsive behaviors, affective impulsivity, rage, and alcohol or substance abuse.

The SSRIs have received the most clinical attention and are likely first-line choices for children, owing to their “broad-spectrum” activity. Citalopram reduces PTSD symptoms at a rate on par with reported rates in adult

populations. Sertraline has also been shown to be helpful in reducing PTSD symptoms in one of the only randomized trials in the child literature.

The SSRIs are generally safe and well tolerated, although recent concerns have led to FDA black box warnings regarding increased suicidal ideation and behavior in depressed children treated with these medications.

Cyproheptadine, an antihistaminic serotonin (5-HT) antagonist, has shown limited utility in reducing traumatic nightmares in open trials. Because of its sedative action and generally safe side effect profile, it may be a useful agent in treating sleep-onset problems and nightmares in children with PTSD. Anecdotal evidence suggests that agents such as trazadone, a sedating 5-HT antagonist antidepressant, and cyproheptadine used alone or in conjunction with the SSRIs, may be particularly useful in sleep dysregulation and trauma-related nightmares that frequently occur in patients with PTSD.

### ***Adrenergic and Serotonergic Agents (TCAs, Venlafaxine—Levels A, C)***

Low-dose imipramine (1 mg/kg) to treat symptoms of acute stress disorder (ASD) and sleep disturbance was shown to be effective in one randomized study, resulting in full remission of ASD symptoms. TCAs, owing to cardiac and anticholinergic side effects, should be considered for sleep problems associated with trauma or when use of safer agents, such as the SSRIs, has failed.

### ***Gamma-Aminobutyric Acid (GABA)-ergic/Benzodiazepine Agents (Lorazepam, Diazepam, Clonazepam—Level E)***

Little, if any, data support benzodiazepine effectiveness in treating the core symptoms of PTSD. These agents (e.g., clonazepam, lorazepam) may have a minor role to play in reducing acute and intense symptoms of anxiety or agitation, or as a short-term, adjunctive treatment to facilitate exposure tasks in psychotherapy.

### ***Opioid Antagonists (Naloxone, Naltrexone—Level E)***

Opioid antagonists have been utilized with mixed results in adults with PTSD. No clinical trials of these agents in treatment of children and adolescents with PTSD have been published.

### ***Miscellaneous Agents/Agents Affecting Multiple Neurotransmitters***

A number of successful open-label trials (Level C) have been conducted successfully with carbamazepine (300–1,200 mg/day, serum levels 10–11.5 µg/ml), with significant improvement in all PTSD symptoms except for continued abuse related nightmares.

Anecdotal experience suggests that traumatized children in fact have favorable responses in reduction of hyperactivity, impulse dyscontrol, and attention impairment with ADHD medications such as methylphenidate, dextroamphetamine, or atomoxetine. Similarly, bupropion is often considered a second-line agent for treating ADHD symptoms and may be a useful agent when affect dysregulation or depressed mood co-occurs with ADHD symptoms.

## Course of Treatment

Certainly, the initial step in the treatment of PTSD is psychoeducation of the child, parents, and adult caregivers. Clinicians are advised to “start low and go slow” with medication dosages and titration schedules because children are not simply “small adults.” Cognitive-behavioral therapy (CBT) in school-age and older children and adolescents is likely to be the treatment of first choice. Many experts use a blend of cognitive, behavioral, dynamic and family-based interventions for childhood PTSD.

## Recommendations

Despite the lack of data, medication use in children with PTSD has become a standard of care. The acceptability of pharmacotherapy to the patient and parent is one criterion on which to base decisions to prescribe medication. Another is the presence of severe comorbid psychiatric conditions that respond to medications also used to treat PTSD. Medication may be favored as a first-line choice when the intensity of PTSD is interfering with a child’s ability to engage in psychotherapy. Finally, medication treatment may also be indicated when there is no access to psychotherapy. No medication currently has an FDA label indication for the treatment of childhood PTSD.

## Summary

The state of knowledge regarding medication treatments for children and adolescents lags substantially behind that for adults. Medication may play a role in reducing debilitating symptoms of PTSD in children’s day-to-day lives and provide relief as they confront difficult material in therapy. Broad-spectrum agents, such as the SSRIs, are a good first choice. Comorbid conditions, such as ADHD or aggressive behavior, should, of course, be targeted with pharmacotherapy known to be effective for these disorders. Reduction in even one disabling symptom, such as insomnia or hyperarousal, may have a positive ripple effect on a child’s overall functioning.

## Suggested Readings

- Friedman, M. J., & Davidson, J. R. T. (2007). Pharmacotherapy for PTSD. In M. J. Friedman, T. M. Keane, & P. A. Resick (Eds.), *Handbook of PTSD: Science and practice* (pp. 376–405). New York: Guilford Press.
- Friedman, M. J., Donnelly, C. L., & Mellman, T. A. (2003). Pharmacotherapy for PTSD. *Psychiatric Annals*, *33*, 57–62.