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PSYCHOTROPIC MEDICATIONS: AN UPDATE FOR SCHOOL PSYCHOLOGISTS

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This article provides an overview of medications used frequently in the treatment of pediatric depression, anxiety, and bipolar disorder. The need for a collaborative relationship between the prescribing physician, school personnel, and the family is outlined. School psychologists can play crucial roles by providing the physician with information at the time of referral, developing school-based psychosocial interventions that augment pharmacological treatment, completing periodic evaluations to assist in symptom monitoring, and alerting the family and physician to any adverse side effects. © 2013 Wiley Periodicals, Inc.

Approximately one in every four to five youths in the United States will meet the diagnostic criteria for a psychiatric disorder during their childhood or adolescence (Merikangas et al., 2010). Prompt identification and treatment of psychiatric illness in childhood is vital. If left untreated, these children are at risk for persistent mental health issues, including school failure, delinquency, family conflict, relationship problems, substance abuse, and accident risk. When psychopharmacological interventions are necessary, school personnel are important members of the teams that care for these children. Crucial roles for school psychologists include: (a) developing school-based psychosocial interventions that augment medication trials; (b) creating a bridge among physicians, parents, and teachers for interdisciplinary collaboration; (c) advocating for appropriate educational services in the least restrictive setting; and (d) alerting the family and prescribing physician if adverse side effects are evident (Abrams, Flood, & Phelps, 2006).

In recent years, the use of psychotropic interventions with youth has increased dramatically (American Academy of Child and Adolescent Psychiatry [AACAP], 2009). The most evident reasons for this expansion are an improved knowledge of the biological bases of mental disorders, a greater evidence base to support the efficacy and safety of psychotropic medications, better advocacy efforts to identify and treat children, and reduced stigma associated with receiving treatment (Phelps, Brown, & Power, 2002). Changes in mental health reimbursement and increased pharmaceutical marketing efforts are also troubling reasons for this trend. There can be a "quick fix" mentality, but it is important to remember that both physicians and mental health clinicians rarely advise medication without concurrent comprehensive therapeutic services. Because pharmacological treatment of attention deficit and hyperactivity disorder (ADHD) has been covered extensively (e.g., Vaughan, Roberts, & Needleman, 2009), this review will focus on medications utilized in the treatment of pediatric depression, anxiety, and bipolar disorder.

PSYCHIATRIC EVALUATION PROCESS

The referral and evaluation of a child by a psychiatrist is ideally a collaborative process. We recommend that the evaluation include interviewing the child and parents, obtaining information from the school and other health care providers, and using screening instruments and/or rating scales completed by the child, family, and teachers. These instruments may include Achenbach's Child

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Behavior Checklist (Achenbach, 1991a), Teacher Report Form (Achenbach, 1991b), and Youth Self-Report (Achenbach, 1991c). Scales specific to the reason for referral such as the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996), Children's Depression Inventory 2 (Kovacs, 2004), Multidimensional Anxiety Scale for Children (March, 1997), Screen for Child Anxiety Related Disorders (Birmaher, Khetarpal, Brent, & Cully, 1997), and the Youth Mania Rating Scale (Young, Biggs, Ziegler, & Meyer, 1978) are recommended. These types of instruments establish a baseline and help track a child's response to treatment.

Because school personnel have critical information about a child's academic performance, social–emotional functioning, and behavior at school, it is very useful to have a signed release permitting the classroom teacher, school mental health professionals, and child psychiatrist to collaborate. To obtain a signed release, it is usually necessary to explain to the parents the advantages of streamlining the flow of information. Although parents may be initially reluctant to approve such communication, assuring them that they are an active part of the treatment team and that information will be shared with discretion usually resolves their concerns.

Key Principles of Pediatric Psychopharmacology

The first tenet of any treatment is to do no harm, and a physician's decision to prescribe a psychotropic medication is not made lightly. Medications are intended to reduce symptoms, improve functioning, and facilitate client utilization of psychosocial interventions. Key considerations in the decision to medicate are the severity of symptoms and the degree of functional impairment. Medication may not have the same effect in all children with the same disorder, and frequent and detailed monitoring of the prescribed medication is needed to evaluate drug efficacy.

Another key principle is related to adverse side effects. Children are often more sensitive to psychotropic medications than adults are, making it essential to monitor not only positive outcomes but also negative consequences. To avoid possible side effects, medication is usually started at a low dose and gradually increased, until reaching a recommended dose that reduces symptoms. In addition, the physician needs to obtain a thorough medical history and record of current medications. Not only does an interaction of medications need to be considered, but also side effects common to medications may compound negative reactions. For example, both antiseizure and antianxiety medications may result in drowsiness and fatigue, and if taken together, this side effect may be magnified. Some children are prescribed multiple psychotropic medications to treat a combination of presenting problems, such as depression, anxiety, and irritability. It is important for physicians to periodically reevaluate the medications and consider altering the regimen as symptoms change.

The third key principle is that psychopharmacological interventions are only one aspect of the treatment plan. Although cautious use of medications may be lifesaving, most children need additional interventions to stabilize the home, learn emotional regulation skills, improve peer relations, and receive appropriate educational services (Zito et al., 2008). Consideration of behavioral, cognitive–behavioral, group skills training, and/or family support interventions should always have a role in pediatric mental health services (AACAP, 1998, 2002, 2007a, 2007b). For mild to moderate symptoms of any psychiatric condition, evidence-based therapeutic interventions may precede a medication trial. For moderate to severe symptoms, such as depression with suicidal ideation or mania, a combination of psychotropic and psychosocial interventions are best (AACAP, 2009).

Major Depressive Disorder

Depression in children may be difficult to detect. Symptoms vary considerably across developmental stages and diverse ethnic groups (AACAP, 1998). Preschoolers often exhibit irritability, apathy, and regression. School-age children may display a sad or irritable mood, crying spells, somatic complaints such as headaches, and lack of pleasure. Depressed adolescents are often intensely

moody, irritable, and sensitive to criticism. For these reasons, pediatric depression is more difficult to diagnose and treat than mood disorders in adults.

The treatment of pediatric depressive disorders needs to always incorporate psychological (e.g., cognitive–behavioral, behavioral, interpersonal) interventions, with medication viewed as a possible augmentation. In support of this combined approach, the Treatment for Adolescents with Depression Study, funded by the National Institute of Mental Health (NIMH), found that the optimal treatment was a combination of medication (e.g., fluoxetine [Prozac]) and cognitive–behavioral therapy (CBT; Glass, 2005). Seventy-one percent of participants responded to this combination compared with 61% for medication alone, 43% for therapy alone, and 35% placebo. Additionally, the combination treatment group had the greatest reduction in suicidal thinking (Glass, 2005), although suicidal thinking decreased with all four treatments, even placebo, highlighting the importance of careful monitoring and attention.

Psychotropic Medications to Treat Major Depressive Disorder

Based on rigorous studies demonstrating safety and efficacy, the Food and Drug Administration (FDA) approves medications for specific disorders. Although FDA approval for drugs used with the pediatric population offers some degree of assurance, many medications in child psychiatry are prescribed "off label" (i.e., no FDA approval for that specific disorder) because of an overall paucity of supporting data. Given that caveat, the first line of pharmacological treatment for pediatric depression is the selective serotonin reuptake inhibitors (SSRIs). The FDA has approved two SSRIs for use with children: escitalopram (Lexapro) and fluoxetine. As a second line of treatment, a selective serotonin-norepinephrine reuptake inhibitor (SNRI), such as desvenlafaxine (Pristiq) or venlafaxine (Effexor), may be used. Finally, bupropion (Wellbutrin) may be considered. For a complete listing of antidepressant medications, their possible side effects, and FDA approval, refer to Table 1.

Dosage Considerations and Side Effects. It is important to note that it may take up to 4 weeks before the effects of antidepressant medication are evident. The goal of treatment is remission of symptoms after 12 weeks. Starting at a low dose, the medication is increased gradually until there is evidence of a positive response. If there is minimal or no response after 8 weeks, an alternative medication is considered. If there is a partial response, an augmentation strategy may be tried. This involves adding a second medication in an effort to achieve a full remission, such as adding bupropion to an existing regiment of fluoxetine.

Medication is usually prescribed for 6 to 12 months before the dose is tapered off, ideally during a school recess period. A longer course of treatment may be considered if: (a) there is a family history of depression (i.e., strong genetic loading), (b) there was a suicide attempt, or (c) several medication trials were necessary to achieve an effective response. Youth should be monitored closely following the discontinuation of medication treatment because approximately 40% of children and adolescents are susceptible to relapse between 6 to 12 months after discontinuing medication treatment (AACAP, 2007b).

Common side effects of SSRIs are gastrointestinal distress, headaches, anxiety, agitation, insomnia, and sedation. The SNRIs may prompt nausea, sedation, elevated blood pressure, and weight gain. With bupropion, patients may experience dry mouth, decreased appetite, and a lowered seizure threshold. Nausea can be decreased by taking the medication with food and usually abates after the first week of treatment. Although medications are commonly taken in the morning, the dose can be switched to evening if fatigue is present during the school day. Some research (e.g., Walkup & Labellarte, 2001) has indicated that pediatric patients may experience agitation, anxiety, and insomnia for up to 6 weeks after an antidepressant is started. This reaction is often dose related (i.e., evident with higher doses), appears more frequently in younger patients, and may occur up to

Table 1
Medications Prescribed for Major Depressive Disorder

Class of Medication	Generic Name (Trade Name)	Side Effects
Norepinephrine/Dopamine Reuptake Inhibitor	Bupropion (Wellbutrin)	Serious: seizures, confusion, hallucinations, unusual thoughts, fever, rash Less serious: headache, dizziness, shaking, insomnia, nausea, vomiting, dry mouth, appetite changes, mild rash, increased sweating Contraindications: seizure disorder, eating disorder, substance abuse, certain medical problems
SSRIs	Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Sertraline (Zoloft)	Serious: serotonin syndrome, mania, seizures, hyponatremia (low sodium), arrhythmias, abnormal bleeding Less serious: nausea, dry mouth, sleep and appetite changes, tremor, diarrhea, flu syndrome, decreased libido, sweating Additional serious side effects: vasculitis, glaucoma, growth suppression, hypotension
SNRIs	Desvenlafaxine (Pristiq) Venlafaxine (Effexor)	Serious: hypertension (high blood pressure), arrhythmias, seizures, abnormal bleeding, pancreatitis, growth suppression, skin reactions Less serious: nausea, headache, sleep and appetite changes, bowel changes, blurred vision, high cholesterol, tremor, abnormal dreams, paresthesia, tachycardia (increased heart rate)

Note. SSRIs = selective serotonin reuptake inhibitors; SNRIs = serotonin norepinephrine reuptake inhibitors. Only fluoxetine (8–18 y) and escitalopram (12–17 y) have Food and Drug Administration approval for treatment of major depressive disorder. All have a black box warning to monitor for suicidality and serious neuropsychiatric events.

20% of the time (Leibenluft, 2011). In addition, approximately 10% to 20% of children receiving SSRIs may evidence persistent lability of mood (Martin et al., 2004). Dose reductions or switching to a different antidepressant, even within the same class (i.e., SSRI, SNRI), may be effective for treating the side effects.

Black Box Warning. In 2004, the FDA directed manufacturers to add a "black box warning" about the increased risk of suicidality in children and adolescents being treated with an antidepressant (http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/UCM096273). This advisory was based on a meta-analysis of 24 placebo-controlled, double-blind clinical trials that evaluated more than 4,000 children and adolescents who had a primary diagnosis of depression. The rate of suicidal ideation, intent, or attempt was 3.8% for those prescribed an SSRI versus 2.1% for those taking a placebo (Hammad, Laughren, & Racoosin, 2006). Following this FDA warning, the number of antidepressant prescriptions written for children and adolescents decreased dramatically (Nemeroff et al., 2007).

Using a meta-analysis of randomized, controlled trials conducted between 1988 and 2006, including seven additional studies that were not available at the time of the FDA report, Bridge et al. (2007) concluded that the benefits of antidepressants likely outweighed the risks to children and adolescents with major depression and anxiety disorders. Although the data indicated that there was a small but increased risk of suicidality in the first 9 days after initiation of treatment, the

pooled random-effects risk differences of suicidal ideation/suicide attempt were less than 1% and not statistically significant. Other researchers have analyzed the risk–benefit relationship following the FDA warning and agreed with Bridge's conclusion (e.g., Jick, Kaye, & Jick, 2004; Kratochvil et al., 2006). However, careful observation is essential. The FDA has recommended weekly face-to-face follow-ups with the prescribing physician for the first 4 weeks. This should then be followed by monthly visits.

Anxiety Disorders

Anxiety disorders involve developmentally inappropriate fears that interfere with the child's daily life. These disorders include generalized anxiety disorder (GAD), phobias, separation anxiety disorder, social phobia, panic disorder, obsessive–compulsive disorder (OCD), acute stress disorder, and post-traumatic stress disorder (PTSD). These disorders may be evidenced in the school setting by the child being unusually fearful, irritable, angry, or distracted; having difficulty completing work; reporting somatic complaints, such as stomachaches and headaches; worrying about getting everything right; and crying frequently. Because children are not likely to identify that what they are feeling is anxiety, the difficulties may go untreated for some time.

There is substantial evidence-based support for behavioral, cognitive–behavioral, and psychosocial interventions for the treatment of childhood anxiety disorders (Weisz et al., 2012). However, when the anxiety level is such that the child or adolescent cannot participate actively in such interventions, medication is warranted as an augmentation. Several studies support such an integrative approach. For example, Walkup and colleagues (2008) completed a randomized study comparing a placebo drug alone, CBT alone, sertraline (Zoloft) alone, and a combination of CBT and sertraline with 128 children aged 6 to 17 years, who were diagnosed with GAD, social phobia, or separation anxiety. There was a significant difference ($p \leq .001$) between the treatment groups, with 81% of the combination medication/CBT group showing notable improvement, compared with 60% for CBT alone, 55% for sertraline alone, and 24% for placebo. An NIMH clinical trial, the Pediatric Obsessive–Compulsive Disorder Treatment Study (POTS), assessed treatment options for OCD with 112 children aged 7 to 17 years. The randomized, placebo-controlled study found that a combination of sertraline and CBT was most effective (54% remission), compared with 39% for CBT alone, and 21% for sertraline alone (POTS Team, 2004).

Psychotropic Medications for Anxiety Disorders

AACAP guidelines (2007a) recommend pharmacological treatment for anxiety disorders if the disorder is moderate to severe, if the child has a comorbid disorder (such as depression), or if there is only a partial response to therapy. As with pediatric depression, the SSRIs are the medications of choice for anxiety disorders. SSRIs that have proven more effective than a placebo in randomized, double-blind studies include fluoxetine (Birmaher et al., 2003), fluvoxamine (Luvox; Walkup et al., 2001), paroxetine (Paxil; Geller et al., 2003), and, as described earlier, sertraline (POTS Team, 2004). When utilizing SSRIs, the side effects and black box warning discussed earlier are to be taken into consideration.

Clomipramine (Anafranil) is a tricylic antidepressant that has proven efficacy via double-blind studies with pediatric OCD (e.g., Geller et al., 2003). Clomipramine is rarely a first choice because of poor tolerability and the risk of fatal overdose. There is anecdotal evidence for the use of benzodiazepines, but they are used only as short-term adjunct treatments with SSRIs until the SSRIs begin to work. However, there are significant concerns about prescribing benzodiazepines in the pediatric population because of the possibility of dependency, notable sedative side effects, respiratory depression when used with alcohol, and paradoxical disinhibition (i.e., agitation rather

Table 2
Medications Prescribed for Anxiety Disorders

Class of Medication	Generic Name (Trade Name)	Side Effects
Alpha-2 Adrenergic Agonists	Clonidine (Catapres, Kapvay) Guanfacine (Tenex, Intuniv)	Serious: syncope (fainting), bradycardia (slowed heart rate), rebound hypertension (high blood pressure) Less serious: dry mouth, drowsiness, fatigue, dizziness, headache, impotence
Benzodiazepines	Lorazepam (Ativan) Diazepam (Valium) Clonazepam (Klonopin)	Serious: dependency/abuse, respiratory depression if combined with other CNS depressants (i.e., alcohol), withdrawal, agitation Less serious: sedation, dizziness, hypotension (low blood pressure), amnesia, disinhibition, irritability
SSRIs	Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Fluvoxamine (Luvox) Sertraline (Zoloft)	Serious: serotonin syndrome; mania; seizures; hypo-natremia (low sodium); arrhythmias; abnormal bleeding Less serious: GI upset, headaches, nausea, dry mouth, sleep and appetite changes, tremor, diarrhea, flu syndrome, decreased libido, sweating
Other Antianxiety Agents	Buspirone (Buspar)	Serious: serotonin syndrome; movement disorders; depression Less serious: dizziness, drowsiness, nausea, headache, fatigue, decreased concentration, numbness, weakness, GI upset

Note. CNS = central nervous system; SSRIs = selective serotonin reuptake inhibitors. Fluoxetine has Food and Drug Administration (FDA) approval for obsessive–compulsive disorder (OCD) in ages 7–17 y; sertraline has FDA approval for OCD in ages 6–17 y; clomipramine and fluvoxamine have FDA approval for OCD in >6 y.

than sedation; AACAP, 2007a). Finally, the alpha-2 adrenergic agents guanfacine (Tenex) and clonidine (Catapres) are considered alternative medications if the anxiety proves refractory to the SSRIs. Table 2 reviews medications prescribed for anxiety disorders.

Pediatric Bipolar Disorder

The public and research communities have engaged in significant debate about the validity of pediatric cases of bipolar disorder (Carlson, 2005; Pavuluri, Birmaher, & Naylor, 2005). Sufficient documentation now exists to indicate that there are youth who present with symptoms similar to those seen in adult cases. The typical presentation in pediatric cases is often depression coupled with hyperactivity. Mania may follow this initial presentation, which is usually manifested as mood lability, severe irritability, reckless behavior, pressured speech, racing thoughts, decreased need for sleep and aggression lasting hours to a few days (AACP, 2007b; Geller et al., 2002; Geller, Tillman, Carney, & Bolhofner, 2004). Children may also show inflated self-esteem, hypersexuality, and/or grandiosity (e.g., taking on numerous impractical tasks, having an unrealistic view of their own talents; Geller et al., 2002). The cyclical illness characterized by *distinct* periods of mania and depression, as seen with adults, is often not evident in youth.

The disorder has a strong genetic component with a four- to six-fold increase in the risk of a child having the disorder if there is a first-degree relative who is affected (Huang et al., 2010; Patel et al., 2010). Current research is focusing on identifying genes specific to bipolar disorder and schizophrenia, which is viewed as having a related genotype (e.g., Ivleva et al., 2010).

Diagnostic Issues in Pediatric Bipolar Disorder

In an effort to address the confusion about the diagnostic presentation of juvenile bipolar disorder versus severe chronic mood lability, researchers have proposed a new *Diagnostic and Statistical Manual of Mental Disorders* (5th edition) category referred to as *disruptive mood dysregulation*. This diagnosis will encompass chronically irritable children between 7 and 17 years of age and require two components: (a) temper outbursts that are developmentally inappropriate, frequent, and extreme; and (b) negatively valenced mood (anger or sadness) that occurs between outbursts. Symptoms must be severe, cause functional impairment in at least one of three contexts (home, school, peers), and be present for at least 1 year (Leibenluft, 2011).

Additional diagnostic concerns arise because there can be a great deal of overlap among the symptoms of mania, ADHD (e.g., motor hyperactivity, impulsivity, and distractibility), and PTSD (e.g., emotional dysregulation, aggression, and irritability; Leibenluft & Rich, 2008). Because a psychiatric diagnosis results frequently in the prescription of a specific type of medication (e.g., antidepressant, antipsychotic, or stimulant), this confusion can have a significant negative impact on treatment (AACAP, 2007b). Clinicians have also raised the concern that although a diagnosis of bipolar disorder results in access to more intensive therapeutic services, it may also lead to children being exposed to medications that may have significant side effects (Thomas, Stansifer, & Findling, 2011).

Psychotropic Medications for Pediatric Bipolar Disorder

Atypical antipsychotics are the standard pharmacological treatment for bipolar disorder (AACAP, 2007b). The atypical antipsychotics include aripiprazole (Abilify), olanzapine (Zyprexa), quetiapine (Seroquel), risperidone (Risperdal), and ziprasidone (Geodon). These medications are very effective as mood stabilizers because they work quickly (Thomas et al., 2011). The most common side effects of atypical antipsychotics include weight gain, sedation, dizziness, and dry mouth. Other possible side effects are an increase in fasting glucose and insulin resistance, elevated triglyceride and cholesterol levels, muscle stiffness, akathisia (restless limbs), extrapyramidal symptoms (emotional blunting, muscle spasms, and abnormal movements), and tardive dyskinesia (irreversible, involuntary, repetitive movements). For these reasons, the prescribing psychiatrist monitors the patient closely for side effects. Regular measurements of weight, blood pressure, pulse rate, fasting glucose, liver functions, and cholesterol are necessary because of the added risk of diabetes and cardiovascular disease. For example, a 2007 study found that the average weight gain after 11 weeks of first-time use of the atypical antipsychotics ranged from 10 to 19 pounds, compared with 0.42 pounds for untreated children (Correll, 2007). It is critical that children who are medicated adopt healthy lifestyle behaviors (i.e., diet and exercise) to help counteract the metabolic side effects. Before prescribing these medications, the psychiatrist shares the risks and benefits to assist the family in making an informed decision.

Lithium carbonate (Lithobid) is another possible medication for the treatment of bipolar disorder, especially for long-term therapy. A mixed salt mood stabilizer that affects several neurotransmitter systems, it has been approved by the FDA for both acute mania and maintenance treatment with the pediatric population. It has additionally been found to have some antidepressant properties and to reduce suicidal behavior (Smarty & Findling, 2007). However, research has indicated that there is considerable variability in response to lithium in children (Findling et al., 2010). To determine long-term efficacy and dosing recommendations with the pediatric population, the Collaborative Lithium Trials (CoLT) are being conducted under the auspices of the National Institute of Child Health and Human Development (Findling et al., 2008).

Lithium side effects may include weight gain, polyuria (frequent urination), polydipsia (excessive thirst), lethargy, tremor, acne, gastrointestinal upset, and cognitive dulling. This medication requires careful dispensing and monitoring because it has a narrow therapeutic index (i.e., small window between therapeutic response and toxic side effects) and can be lethal in overdose. Lithium toxicity is a medical emergency and can present with tremor, nausea, ataxia, confusion, delirium, and seizures. Before starting lithium, a child's blood count, kidney functioning, and thyroid must be evaluated. Blood lithium levels are to be checked with each change in dose. Finally, all laboratory values need to be repeated every 3 to 6 months.

Valproic acid (Depakote) is an anticonvulsant mood stabilizer that has been used by clinicians to treat pediatric bipolar disorder. It does not have FDA approval for the treatment of childhood mania and has not been shown to be an effective maintenance treatment. For example, a double-blind study using 150 10- to 17-year-olds found no significant difference between this medication and the placebo (Wagner et al., 2009). However, it is used to treat severe aggression in adolescent boys diagnosed with bipolar disorder. Because it can cause polycystic ovary syndrome (cysts on the outer edge of each ovary, excess hair growth, infrequent menstrual cycles, acne, and obesity) and is a known teratogenic (i.e., can disturb the development of the embryo), it is not generally prescribed to females. Common side effects of valproic acid include weight gain, sedation, lowered blood counts, and hair loss. This medication also requires that baseline liver function and blood tests be repeated every 6 months, along with a valproic acid blood level with any dose change (Smarty & Findling, 2007).

Lamotrigine (Lamictal) is another anticonvulsant drug that is used to address symptoms in bipolar depression (Thomas et al., 2011). Although lamotrigine does not need monitoring of blood drug levels, it requires a slow titration over 1 to 2 months to attain an effective dose. Possible side effects include nausea, dizziness, headache, and blurred vision. The most feared side effect, Stevens-Johnson syndrome, is a life-threatening rash that is quite rare (incidence of eight per 1,000 in people 16 years of age and older). The risk of this syndrome is higher at times of treatment initiation, dose increase, or if multiple doses are missed and then the typical dose is resumed (Smarty & Findling, 2007).

There is considerable controversy over whether it is advisable to use antidepressants to treat pediatric bipolar depressive episodes (Kowatch & DelBello, 2005; Leibenluft, 2011). Typically, this is done only if the child is at a therapeutic dose on a mood stabilizer or atypical antipsychotic and still has depressive symptoms. Even then, the concern is that the antidepressant could flip the child into an acute manic episode (Kowatch & DelBello, 2005). Clearly, more evidence-based research evaluating medication efficacy for pediatric bipolar disorder is needed. Table 3 lists the medications used to treat bipolar disorders.

Other Medication Issues With Pediatric Bipolar Disorder

When working with children and families affected by bipolar disorder, it is important to discuss the need for continued maintenance treatment. For those who have had repeated episodes of severe depression or mania threatening their safety and requiring hospitalization, long-term medication strategies are essential. For children and adolescents with less severe and chronic symptoms, it is suggested that they remain on maintenance treatment for 12 to 24 months before considering a medication-free trial, with close monitoring (AACAP, 2007b). Relapses of mood episodes can be high, even with effective treatment; however, continuing psychopharmacologic treatment can prevent these episodes from becoming more frequent or severe.

Careful diagnostic clarification is necessary when a child presents with difficulty focusing, hyperactivity, and mood symptoms because ADHD and pediatric bipolar disorder can have

Table 3
Medications Prescribed for Pediatric Bipolar Disorder

Class of Medication	Generic Name (Trade Name)	Side Effects
Atypical Antipsychotics	Aripiprazole (Abilify) Olanzapine (Zyprexa) Quetiapine (Seroquel) Risperidone (Risperdal) Ziprasidone (Geodon)	Serious: metabolic disorders (diabetes), movement disorders, tardive dyskinesia, neuroleptic malignant syndrome, seizures, arrhythmias, stroke Less serious: increased appetite, fatigue, nausea, dizziness, headache, akathisia, tremor, photosensitivity, increased prolactin
Lithium Salts	Lithium (Lithobid)	Serious: lithium poisoning (vomiting, confusion, lack of coordination), seizures, kidney problems, hypothyroidism Less serious: tremor, increased thirst and urination, weight gain, acne, drowsiness, cognitive dulling
Mood Stabilizers/ Anticonvulsants	Lamotrigine (Lamictal)	Serious: Stevens–Johnson syndrome (life-threatening rash), multiple organ failure, blood disorders, liver failure, pancreatitis, worsened depression Less serious: nausea, dizziness, tiredness, headache, GI upset, tremor, photosensitivity
	Divalproex sodium (Depakote)	Serious: liver failure, platelet depression, other blood disorders, pancreatitis, Stevens–Johnson, psychosis, encephalopathy, confusion, polycystic ovary syndrome Less serious: weight gain, nausea, tremor, GI upset, dizziness, hair loss, depression, blurred vision, photosensitivity

Note. Food and Drug Administration (FDA) approval for schizophrenia for ages 13–17 y: aripiprazole, olanzapine, quetiapine, risperidone. FDA approval for bipolar manic/mixed for ages 10–17 y: aripiprazole, olanzapine, quetiapine, risperidone. FDA approval for bipolar mania ages ≥12 y: lithium. FDA approval for autistic disorder irritability for ages 5–17 y: aripiprazole, risperidone.

overlapping symptoms or can be comorbid (i.e., both disorders are present and require treatment). The psychiatrist then decides what symptom to address first, which can be challenging. Sometimes, if children are treated for ADHD with a stimulant, their irritability may improve. However, other times a stimulant may make a child's mood symptoms worsen, requiring a mood stabilizer first before a stimulant trial may ensue to address impulsivity and hyperactivity (AACAP, 2007b).

A key differential is to determine whether severe aggression is a presenting symptom of mental illness, a reaction to being threatened, or a maladaptive response (Conner, 2004). Determining whether aggression is a manifestation of bipolar disorder or another illness, such as ADHD, PTSD, anxiety, or OCD, will influence the choice of medication. An assessment of the chronicity, frequency, and severity of the aggressive acts provides a context for this determination. If maladaptive aggression appears in the absence of antecedent social cues (i.e., no specific events are linked to the outbursts), is impulsive, out of proportion in intensity, frequency, duration, or severity, and does not terminate appropriately, then psychopharmacological intervention may be warranted (Bambauer & Connor, 2005).

Treatment of aggressive behavior usually begins with cognitive–behavioral therapy and de-escalation strategies, along with family guidance (AACAP, 2002). If therapy alone is unsuccessful and the symptoms are severe, medication may be used. It is common clinical practice to identify target symptoms in an aggressive child, such as irritability, impulsivity, or affective lability. Because

there are no specific pharmacological agents that target aggression, medication trials focus on these other symptoms. There are some drugs, including the atypical antipsychotics, anticonvulsant mood stabilizers, benzodiazepines, alpha-2 adrenergic agonists, and stimulants, that are used for their capacity to decrease aggression. Because of the possible side effects, antipsychotics are recommended only when other treatments have failed or if the child is at imminent risk for harming someone (AACAP, 2007b). The atypical antipsychotic risperidone has the best evidence-based support for treating maladaptive aggression across a variety of diagnoses (e.g., autism, conduct disorder, bipolar disorder, pervasive developmental disorder), as well as with youngsters who have below-average intelligence (McCracken et al., 2002). Mood stabilizers, such as lithium and valproic acid, are used occasionally for extreme aggression but have not consistently been shown to be effective. Although SSRIs have been found to be helpful in treating aggression in adults, there is little evidence to support their use for aggression in children (Thomas et al., 2011).

Conclusion

School psychologists play crucial roles for children with psychiatric diagnoses, including identifying students who may need a more intensive evaluation by a psychiatrist and encouraging families and school personnel to recognize the significance of behaviors such as irritability, mood lability, and disengagement. The school psychologist can provide the treatment team with critical observations of how the student functions at school and assessment of the efficacy of a medication trial. Finally, the school psychologist may provide psychosocial interventions, assisting the child to develop necessary interpersonal skills.

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