Distinguishing ADHD from juvenile bipolar disorder

A guide for primary care PAs

Pediatric clinicians should know how to distinguish juvenile-onset bipolar disorder from ADHD, since arriving at the right diagnosis is essential to providing the most effective treatment.

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For the past two decades, there has been an ongoing debate regarding the methodology employed to differentially diagnose attention-deficit/hyperactivity disorder (ADHD) and juvenile-onset bipolar disorder (JBPD).[1] ADHD and bipolar disorder are listed as separate diagnoses in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR);* however, the diagnostic criteria overlap, making the differential diagnosis problematic.[2] Although the accuracy of diagnosis among these disorders has been investigated for years, it has become increasingly relevant as growing numbers of children with severe emotional and behavioral difficulties are identified.[3]

Attention-deficit/hyperactivity disorder

ADHD is considered the most researched and commonly diagnosed psychiatric disorder of childhood.[4,5] It is characterized by a triad of symptoms (hyperactivity, inattention, and/or impulsivity) that cause impairment in the child's social, educational, relational, occupational, and self-sufficiency roles.[6] Estimates suggest that ADHD occurs in 5% to 9% of school-age children and is three times more common in boys.[7] Theories suggest that boys are more likely to receive a diagnosis of the hyperactive subtype since they are more likely to exhibit aggressive, externalizing types of behaviors. Girls are more likely to receive a diagnosis of the inattentive subtype because they are less likely to exhibit the more attention-grabbing symptoms, appearing instead to have more problems with inattention.[8]

For a diagnosis of ADHD, the child must exhibit hyperactive, inattentive, and/or impulsive symptoms before the age of 7 years.[2] There is lack of empiric support for this established age criterion, however, and it has been criticized as overly restrictive.[9] Nevertheless, ADHD remains a common childhood diagnosis given to children with uncomplicated forms of the disorder as well as to others with severe disability and comorbidity (eg, depression, conduct disorder, and oppositional defiant disorder).[10]

Juvenile-onset bipolar disorder

Historically, JBPD has been less common than ADHD, with an estimated prevalence of 1% to 2%.[11] More recently, recognition of bipolar symptoms in children has been growing.[5,12] The increased diagnosis of JBPD stems primarily from an amended concept of bipolar disorder.[13] Early investigators hypothesized that the disorder would manifest as it does in adults, with distinct episodes of mania and depression, and would be easily differentiated from ADHD.[14] It has become apparent, however, that JBPD's initial manifestations and

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IN THIS ARTICLE

Key Points

- ADHD, the most researched and commonly diagnosed psychiatric disorder of childhood, is characterized by a triad of symptoms that cause impairment in the child's social, educational, relational, occupational, and self-sufficiency roles.
- The signs and symptoms of JBPD make it difficult to distinguish from ADHD and include aggressive behaviors, severe affective outbursts or explosive anger, extreme temper tantrums, and increased impulsivity, hyperactivity, and inattention.
- The family psychiatric history is crucial. Children with typical ADHD do not have family histories with elevated rates of bipolar disorder, while those with JBPD often have higher than normal rates of bipolar disorder among relatives.

Competencies

Medical knowledge	◆◆◆◆
Interpersonal & communication skills	◆◆◆◆
Patient care	◆◆◆
Professionalism	◆
Practice-based learning and improvement	◆
Systems-based practice	◆

For an explanation of competencies ratings, see the table of contents.

clinical course distinguish it from adult-onset bipolar disorder (ABPD) and that its signs and symptoms are more similar to those of ADHD.[7]

Unlike ABPD, JBPD is often characterized by a chronic, rapid-cycling, irritable course with symptoms of mania and depression occurring simultaneously.[5] The classic symptoms of mania often found in ABPD may be absent or difficult to detect in JBPD. Manifestations of JBPD that make it difficult to distinguish from ADHD (and particularly ADHD with comorbid oppositional defiant disorder) include aggressive behaviors, severe affective outbursts or explosive anger, extreme temper tantrums, and increased impulsivity, hyperactivity, and inattention.[11,13]

Comorbidity

JBPD is often diagnosed along with other disorders. Up to 24% of affected children present with more than three comorbid conditions.[1]

Researchers suggest that 57% to 100% of children with JBPD have comorbid ADHD, while only 11% to 22% of children with ADHD also have JBPD.[7] Other research suggests that the younger the child when bipolar disorder is diagnosed, the more likely ADHD is to be present also.[15] In a study of adolescent patients with bipolar disorder, 88% with the childhood-onset form and 59% with the adolescent-onset form had comorbid ADHD.[15] Some clinicians and researchers have questioned these comorbidity figures, suggesting that they can be explained by overlapping symptoms, confusion of normal developmental behaviors, and/or shared genetic vulnerabilities.[16] Others argue that manic symptoms are not being adequately differentiated from hyperactive symptoms.[17] Some have suggested that children with comorbid JBPD and ADHD have a familial subtype of bipolar disorder.[18]

Limited diagnostic criteria make overlapping symptoms even more difficult to interpret (see Table 1, page 44). In fact, the *DSM-IV-TR* does not provide distinct diagnostic criteria for JBPD.[4,5] Investigators have attempted to establish consensual definitions and working guidelines for JBPD and ADHD.[19]

Presentation

Patients with JBPD and ADHD present with irritability, hyperactivity, accelerated speech, and distractibility.[20] JBPD produces chronic rapid cycling rather than the episodic cycling found in ABPD, so symptoms may appear continuous (ultradian); this makes distinguishing JBPD from ADHD more difficult.[1] Symptoms that the *DSM-IV-TR* associates with prepubertal mania are not seen in ADHD, however, and may aid in diagnosis. Researchers and clinicians have suggested that these important signs of JBPD (elation, grandiosity, flight of ideas/racing thoughts, decreased need for sleep, and hypersexuality) should receive more attention.[21] There are other distinct manifestations of JBPD, such as extreme and frequent mood lability, extended tantrums, extreme aggression, suicidality (suicidal thinking and behavior), grandiose or self-accusatory delusions, and hallucinations.[1] Additionally, researchers have found that children with JBPD—unlike those with ADHD—have significant elevations on the Child Behavior Checklist (CBCL), a measure of child behavior problems. These elevations indicate more delinquency, aggression, anxiety, depression, and thought problems.[22]

By resolving the diagnostic dilemma and providing prophylactic pharmacotherapy, practitioners can reduce the psychiatric and psychosocial morbidity associated with JBPD.[22] Medications commonly used to treat ADHD, such as CNS stimulants, atomoxetine, and antidepressants, may be ineffective for children with JBPD and may even exacerbate bipolar symptoms.[1] Also, the use of antidepressants and stimulants in children may trigger mania and result in an earlier onset of bipolar disorder.[12] The FDA's health advisory suggesting that children and adolescents taking antidepressants may be at increased risk for suicidality highlights the importance of an accurate differential diagnosis. *Continued on page 44*

TABLE 1
ADHD and JBPD: Overlapping signs and symptoms

ADHD	JBPD
Blurts out answers	Distractibility or constant changes in activities or plans
Difficulty playing quietly	Increased activity or physical restlessness
Difficulty remaining seated	Loss of normal social inhibitions
Easily distracted/jumps from one activity to the next	More talkative than usual
Fidgets	
Interrupts or butts in uninvited	
On the go, acts as if run by a motor	
Runs or climbs about inappropriately	
Talks excessively	

Data from Kent L and Craddock N.[7]

TABLE 2
Common behavioral rating scales

ADHD	JBPD
Attention Deficit Disorder (ADD) Evaluation Scale, 2nd ed	CBCL—PRF
ADD-H Comprehensive Teacher Rating Scales (ACTeRS)	CBCL—TRF
ADHD-IV Symptoms Rating Scale	CBCL—Youth Self Report (YSR)
Barkley Home/School Situation Questionnaires	General Behavioral Inventory (GBI)
Child Behavioral Checklist (CBCL)	Young Mania Rating Scale (YMRS)
CBCL—Parent Report Form (PRF)	
CBCL—Teacher Report Form (TRF)	
Conners' Rating Scales	
Swanson, Nolan, and Pelham (SNAP-IV) Questionnaire	
Vanderbilt ADHD parent/teacher diagnostic rating scales	

Data from Collett BR et al,[29] Youngstrom EA et al,[31] Biederman J et al,[32] and National Resource Center on ADHD: A program of CHADD. Diagnosis & treatment. Available at: http://www.help4adhd.org/en/treatment. Accessed November 27, 2006.

In light of the significant changes in the health care system and increased demands to improve productivity while containing costs, PAs have become critical members of the pediatric team.[23] As a result, it is imperative that PAs have an accurate understanding of ADHD and JBPD and that they understand the nuances of the differential diagnosis in this population.

Diagnosis

Since the process of diagnosing ADHD and/or JBPD is multifaceted, primary care providers, pediatric psychologists, and psychiatrists often compose the diagnostic team. Many biological and psychological conditions can manifest similarly to ADHD or JBPD. A thorough evaluation should include a complete history and physical examination, laboratory tests, clinical interviews with the child and parent, behavioral rating scales, and other testing as deemed appropriate. The findings from these assessments are then compared to the diagnostic criteria listed in the *DSM-IV-TR*.[24,25]

Physical examination When patients present with an abnormal mental status or behavioral history, the

first step is to determine whether there is a physical cause.[26] The history, physical examination, and appropriate laboratory tests (eg, CBC, basic metabolic panel, tests for thyroid and liver function) will help to exclude infection, anemia, lupus, hypercalcemia or hypocalciuria, diabetes, epilepsy, thyroid disease, and other physical diseases that may cause mood swings and mental status changes.[27] In addition, a thorough history will rule out alternative etiologies, including substance abuse, sexual abuse, or sudden changes in the child's life such as divorce or a new school.[28]

Psychological evaluation If the physical examination is unhelpful, a mental health examination and clinical interviews of the child and parent are warranted. Additionally, interviewing the child's teacher, other health professionals, or family members will give a better understanding of the full clinical picture of symptoms.[26] When a pediatric psychiatrist or psychologist is consulted, the evaluation typically includes clinical interviews as well as a thorough assessment using clinically appropriate measures. Behavioral scales, such as the CBCL-Parent and Teacher Report Forms and the Conners' Rating Scales, are completed by parents and teachers to evaluate the type and frequency of the child's behaviors.[28] Table 2 (page 44) lists other behavioral rating scales that are used in the assessment of ADHD and JBPD. Behavioral rating scales are valid and reliable methods of assessing behavioral symptoms in children, but they are not independent diagnostic tools and are useful only as informative pieces of the entire clinical evaluation.[29]

The Child Psychiatric Workgroup on Bipolar Depression recently published treatment guidelines.

Rating scales Some researchers have used behavioral rating scales to differentiate between the overlapping symptoms of ADHD and JBPD. One group found that children with JBPD scored significantly higher on the parent and teacher versions of the CBCL on the nonspecific dimensions, such as hyperactivity, aggressiveness, and anxiety.[30] Another compared six different diagnostic tools and found that the Parent Report Form of the CBCL, followed by the CBCL-Teacher Report Form and then the CBCL-Youth Self Report, were most accurate at distinguishing children with JBPD from those with ADHD.[31] These studies were consistent with previous research on the CBCL.[32]

In addition to behavioral rating scales, the Kiddie Schedule for Affective Disorders and Schizophrenia (WASH-U-KSADS) is the most widely used semistructured diagnostic instrument for evaluating JBPD.[31] The WASH-U-KSADS has been beneficial in identifying specific symptoms unique to bipolar disorder, including mania, grandiose delusions, suicidality, hypersexuality, and ultrarapid or ultradian cycling.[30] The WASH-U-KSADS is a semistructured interview administered by trained clinicians to both the parent and the child.[30] Scale developers have demonstrated excellent interrater reliability for the measure.[33]

While most practitioners utilize interviews and behavioral rating scales as diagnostic tools, the validity and reliability of these instruments have been questioned since they were originally designed for adult populations and they are not developmentally sensitive, particularly with bipolar disorder.[3] Further, some scales, such as the Young Mania Rating Scale, were developed for quantifying behaviors, not for diagnosing a disorder.[3] Experts continue to disagree on the most effective and accurate assessment tools for ADHD and JBPD because there is no gold standard for diagnostic evaluation.[34] Thus, it is advantageous for pediatric clinicians to collaborate with pediatric psychiatrists and psychologists who can contribute specialized expertise to these evaluations.[35]

Figure 1 displays a clinical scenario and the diagnostic steps that a primary care provider and psychologist or psychiatrist may utilize to diagnose ADHD and JBPD. It is important that providers administer and interpret tests/behavioral scales only if they have been trained in their use.

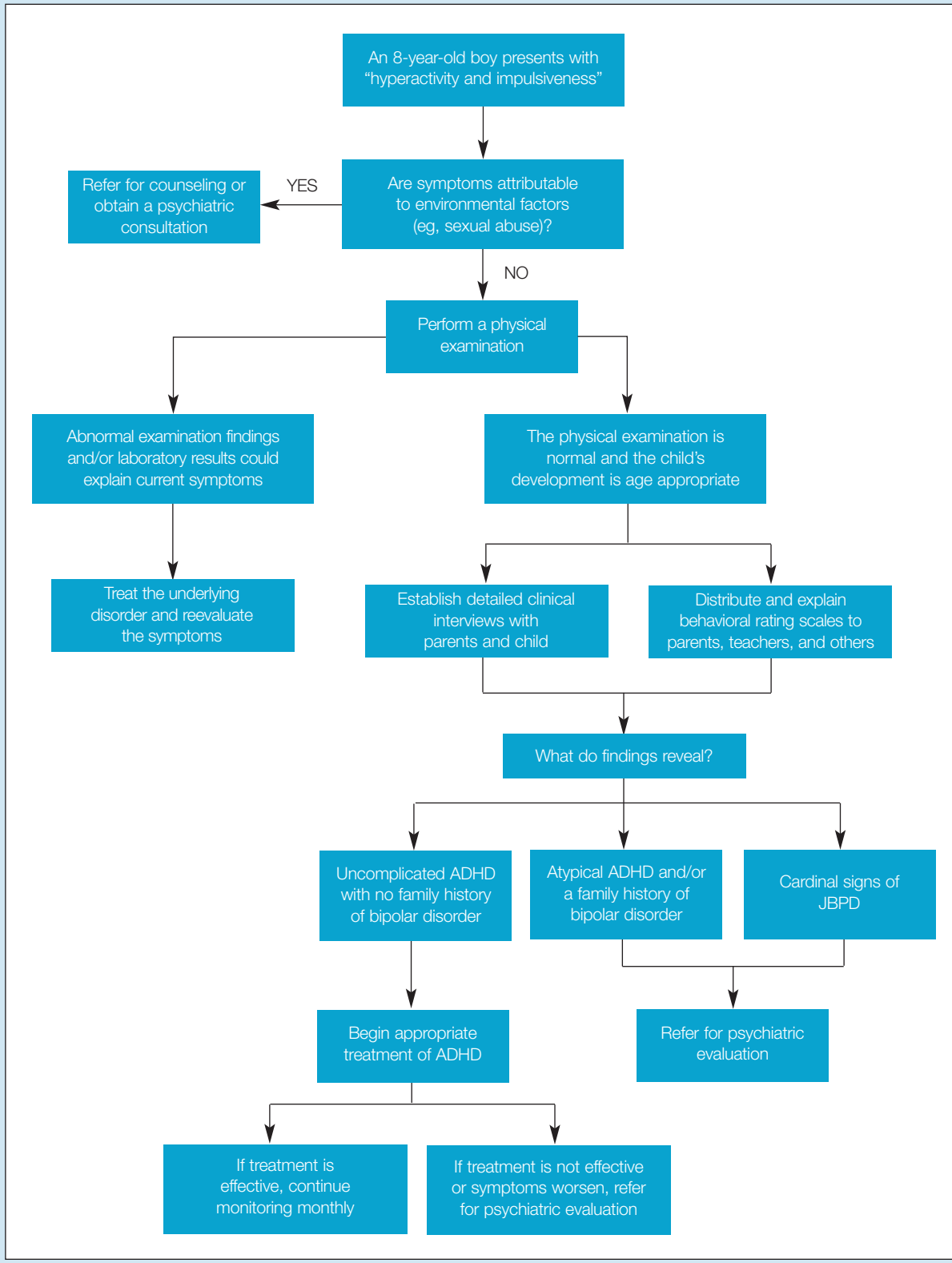
Treatment

Once a diagnosis is established, treatment should be initiated and closely monitored. The treatment of ADHD and JBPD and associated comorbidities is currently an area of limited research. The Child Psychiatric Workgroup on Bipolar Depression recently published treatment guidelines for children and adolescents with bipolar disorder.[36] These include algorithms for acute-phase treatment based on clinical trials, case reports, and expert panel recommendations for the treatment of type 1 bipolar disorder with and without psychosis. Lithium was the only pharmacologic agent included in the algorithm whose use was substantiated by controlled trials in children. Agents in the algorithm whose use was substantiated by randomized, clinical trials in adults included lithium, divalproex, carbamazepine, risperidone, olanzapine, quetiapine, ziprasidone, aripiprazole, and lamotrigine.

The guidelines also discuss the roles of psychotherapy and electroconvulsive therapy along with the treat-

FIGURE 1

Diagnosis of ADHD and JBPD



ment of comorbid psychiatric illness.[36] Medications used in the treatment of ADHD in children and adolescents include CNS stimulants such as methylphenidate, atomoxetine, bupropion; central alpha$_2$-adrenergic agonists such as clonidine; and to a lesser extent, tricyclic antidepressants.[4]

Conclusion

Although differentiating ADHD from JBPD is a clinical challenge, the following tips may be helpful:

- The family psychiatric history is crucial. Children with typical ADHD do not have family histories with elevated rates of bipolar disorder, while those with JBPD often have families with higher than normal rates of bipolar disorder.
- Mood swings, serious depression, and marked irritability that is punctuated by explosive temper outbursts (rage storms) with serious physical aggression or destructive behavior are not hallmarks of ADHD but do occur more often among those with JBPD, particularly males. While children with ADHD may be somewhat oppositional when confronted with work requests, they do not manifest rage attacks, physically assaultive behavior, or property destruction as a matter of course.

Appropriate management of children with ADHD and/or JBPD is an attainable clinical goal.

- Mania, significantly elevated mood, grandiosity, significant irrational disturbances in thinking, and hypersexuality (in teens) are characteristic of JBPD and are not common features of ADHD.
- Highly elevated ratings across all dimensions (internalizing and externalizing) of behavior rating scales are more typical of JBPD than of ADHD (where externalizing scales are those most often elevated).
- Excessive speech, distractibility, restless or hyperactive behavior, and poor impulse control are characteristic of both ADHD and JBPD and are not likely to be helpful in the differential diagnosis.

The appropriate management of children with ADHD and/or JBPD is an attainable clinical goal that should be pursued by all pediatric practitioners, including PAs. A multidisciplinary evaluation that includes a complete history and physical examination, clinical interviewing, use of behavioral rating scales, and psychiatric consultation will lead to accurate diagnosis and appropriate treatment in nearly all cases. □

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