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ARTICLE

Pediatric Bipolar Disorder: A Practical Guide for Clinicians

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Abstract
Pediatric bipolar disorder (PBD) is a controversial clinical entity and it still needs to be satisfactorily defined. Having a polymorphous presentation and associated with numerous symptoms of comorbid psychiatric illnesses often diagnosed during childhood and adolescence, including attention deficit hyperactivity disorder, its symptoms do not completely parallel those of bipolar disorder in adults. The clinician must be able to reach a diagnosis of PBD in the presence of fluctuating and atypical symptoms, especially in children, who tend to experience mixed episodes and very rapid cycles. Historically a key symptom for diagnosing PBD is episodic irritability. Proper diagnosis is critical due to the gravity of its prognosis. Clinicians may find supporting evidence for a diagnosis through careful study of the medical and developmental history of the young patient in addition to psychometric data. Treatment prioritizes psychotherapeutic intervention and assigns important roles to family involvement and a healthy lifestyle.

Keywords Pediatric bipolar disorder · Labile affect · Psychomotor agitation · Disinhibition · Family

Introduction

It is estimated that ~ 60% of patients suffering from bipolar disorder (BD) in adulthood exhibited symptoms before the age of 19, and that 20% to 40% of bipolar adults showed early signs in childhood. The prevalence of pediatric bipolar disorder (PBD) is estimated to be 3.9%, with peak incidence during adolescence [1]. At as early as 6 years of age, BD may be clinically identified, and hypomanic clinical presentations have been described in 4-year-olds. Diagnosing this prepubertal form is a major challenge. Due to polymorphous, indistinct symptoms that differ quantitatively from those of adult BD, PBD is especially difficult to diagnose. Individuals with the disorder may also present with any of several comorbid psychiatric illnesses of childhood and adolescence. In spite of this reality, PBD has yet to be assigned unique diagnostic criteria: the DSM-5 makes no distinction vis-à-vis adult BD [2]. Although it is rare, the stakes for its correct diagnosis are high. PBD is a chronic disorder that severely alters cognitive and emotional functioning in youth, with substantial repercussions on academic and social life. In the face of pronounced, atypical symptoms observed in their child patients, clinicians must be able to distinguish PBD from a range of differential diagnoses. An early treatment specific to the disorder may then be implemented, thereby substantially improving prognosis and lowering the risk of suicide. Family involvement is a key element of therapy that affects the trajectory of the disorder.

PBD: A Complex Diagnosis

PBD remains greatly underdiagnosed because of the complexity of its clinical presentation, with symptoms often identical to those of other childhood psychiatric disorders, such as attention deficit hyperactivity disorder (ADHD). Clinicians must aim to prevent the disorder, sparing patients its serious consequences, and avail themselves of the best therapeutic tools for its treatment when diagnosed. It is important to note that the clinical presentation of PBD in prepubertal children differs from that in adolescents, the latter being more similar to BD in adults. In adolescence, symptoms become very pronounced and the criteria for diagnosis more conspicuous. We will describe PBD in children and adolescents while focusing on clinical characteristics allowing early prepubertal diagnosis.

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Risk Factors

Genetic factors are preponderant in this disorder, which has a heritability of 0.7 and a high rate of concordance between identical twins [3]. The risk of developing PBD is higher when there is a family history of the disorder in a first-degree relative or in the case of perinatal insults [4]. Such psychobiological factors, together with environmental stress (linked to childhood abuse, family conflict, low socioeconomic status, or other factors), can trigger the first episodes. Anxiety disorders (ADs) and sleep disorders have also been identified as PBD risk factors [5]. Psychological traits of children at high risk include greater difficulty internalizing or controlling anger, trusting or communicating with peers, or communicating with parents, and less emotional awareness [6].

The Question of Diagnosis

PBD is not described in the DSM-5, leaving professionals to apply the same criteria used for diagnosis of BD in adults. Yet these criteria are less effective for diagnosis in children, given the psychological specificities of this population. For example, caution is due to avoid confusing euphoria with natural childhood exuberance, or grandiosity with a healthy imagination. Motor hyperactivity, aggression, irritability, and labile affect are the leading symptoms in children, far ahead of elation. Let us also recall that disinhibition, impulsivity, and unaffectedness are especially common features of normal development in children < 10 years old. Psychotic symptoms are substantially more frequent in youth, especially adolescents, than in the adult population. Subsyndromal mood fluctuation, episodes with mixed features, rapid cycling, irritability, tantrums, low frustration tolerance, or inappropriate sexual behavior seem more specific to PBD. In addition, physical complaints, especially headaches and digestive problems, are more frequent during mood episodes.

Comorbidities

Comorbidities and overlap of symptoms are very common in BPD and explain the major diagnostic delay observed. The symptoms of PBD are described as lying at the intersection of those associated with the most common psychiatric illnesses in the pediatric population. This makes it difficult to define its distinct clinical features. It is important to identify and treat comorbidities because they affect PBD treatment response and prognosis. The main comorbidities reported are ADHD, ADs, conduct disorder (CD), and specifically in adolescents, drug and alcohol abuse and dependence as well as suicidal behavior. In addition, we can mention that some symptoms of traumatism could also be associated with BD and need to be differentiated.

PBD and ADHD

PBD symptoms greatly overlap with those of ADHD, both being associated with psychomotor agitation, impulsivity, and distractibility. On average, 60% of bipolar children have comorbid ADHD [7], with some studies advancing figures as high as 93%. It is important here to recall a methodological point: historically some studies particularly those using the KSADS-E have "double counted" symptoms given the overlap in symptoms of these disorders. So the comorbidity would exist if counting symptoms in this way leading to a bias. Diagnosis is further complicated by 30% to 50% ADHD comorbidity with oppositional defiant disorder and CD, both of which also share behavioral symptoms with BD [8]. Recent studies advance that comorbidity of BD and ADHD may even constitute a distinct subtype of bipolar I disorder (BP-I) or ADHD [9]. ADHD as a prodrome of PBD in at-risk youth has been advanced [10]. But this point is still in discussion since the The Multimodal Treatment of Attention Deficit Hyperactivity Disorder Study (MTA) (longitudinal study of youth with ADHD) found almost no one who converted to BD. In studies with family history (such as the Pittsburgh bipolar offspring study(BIOS)), school-age ADHD is not a significant predictor of bipolar onset. But it is important to recall that children may be at specific high risk for developing BD, particularly those with preschool ADHD and early-onset parental BD [11].

PBD and ADs

The estimated prevalence of ADs in the PBD population ranges from 30 to 70%. The 2020 meta-analysis by Yapıcı Eser et al. reported comorbid ADs (all types combined) in 44.7% of PBD cases—and specifically, rates of 12.7% for panic disorder, 27.4% for generalized anxiety disorder, 20.1% for social phobia, 26.1% for separation anxiety, and 16.7% for obsessive–compulsive disorder. If PBD emerges in prepubertal children, there is higher comorbidity with generalized anxiety disorder and separation anxiety, whereas its emergence in adolescence is more closely associated with comorbid panic disorder, obsessive–compulsive disorder, and social phobia. Finally, early-onset PBD increases the risk of developing an AD [12].

PBD and CD

In one group of PBD patients, the prevalence of comorbid CD was ~ 70% [13]. PBD is often characterized by dysphoria—responsible for affective disorders marked by tantrums—which offers an explanation for frequent diagnosed

co-occurrence of PBD and CD. They are, however, distinct disorders, and their co-occurrence may itself represent a separate nosological entity [14, 15]. PBD is characterized by especially explosive and erratic behavior: brushes with the law and psychotic states prompting aggressive behavior are significantly more common in youth with the disorder [16]. This criminal behavior is in large part explained by the disinhibition typical of PBD. CD worsens the symptomatic expression of mania, just as mania increases the frequency of antisocial behavior. In children diagnosed with mania, CD, or both, comorbid psychiatric disorders are very common, and significantly more so in those with a dual diagnosis of PBD and CD [17]. Correctly reaching this dual diagnosis is important because both PBD and CD may be treated with mood stabilizers [14].

PBD and Substance use Disorder

A frequent complication of CD and PBD is substance use disorder (SUD). PBD precedes SUD for the majority of patients in whom these disorders co-occur [18]. Reported SUD prevalence in the PBD population ranges from 15 to 60%, depending on the study [19], and whether the risk of SUD is higher if PBD develops in adolescence, rather than before puberty, remains to be determined. Identified predictors of SUD in youth with PBD include separation of biological parents, physical or sexual abuse, CD, suicide attempts, and post-traumatic stress disorder [19]. SUD in individuals with PBD is associated with greater psychosocial repercussions, including more frequent suicide attempts, run-ins with the police, and aborted teen pregnancies [18].

PBD and Suicidal Behavior

Goldstein et al. estimate that a third of PBD patients engage in suicidal behavior. Episodes with mixed features, psychotic disorders, previous hospitalization, self-injurious behavior, panic disorder, and SUDs are predictors. PBD severity and comorbidities also significantly increase suicide risk [20]. The rate of suicide in the pediatric population is 3% five years after initial hospital treatment of the disorder [21] and as high as 25% in adolescents (versus 6% in adolescents with unipolar depression) after 10 years of follow-up [22]. The rate of attempted suicide is 44% in adolescents with PBD, versus 22% in those with unipolar depression, and 1% in control subjects. Adolescents with PBD are younger at the time of their first suicide attempt, succeed more often, and are more likely to make multiple attempts than adolescents with unipolar depression [23].

PBD, Learning Disabilities (LDs), and Cognitive Disorders

PBD patients present with conspicuous neuropsychological disabilities affecting learning; verbal, visuospatial, and working memory; processing speed; and social cognition [24, 25]. Neurodevelopmental factors are thought to contribute to such cognitive impairments. In some cases, these impairments emerge before the development of PBD and remain stable throughout adolescence. The study by Bora et al. identifies cognitive heterogeneity as a premorbid feature of PBD, and cognitive subgroups of the PBD patient population may be detected before the emergence of the disorder and its prodromes [26]. Deficits are more severe in patients with BP-I or comorbid ADHD. The cognitive dysfunctions described are similar to those seen in ADHD or disruptive mood dysregulation disorder (DMDD) and have substantial repercussions on classroom learning and psychosocial functioning [25].

Psychopathological Approach

PBD symptomatology is nonspecific and includes signs of instability, aimless agitation, hypersensitivity, low frustration tolerance, erratic behavior, and irregular interpersonal relations indicative of major emotional vulnerability. If not addressed, this fragility will progressively affect mood and lead to a premorbid state marked by a cyclothymic temperament that may develop into pathological cyclothymia, especially in youth with a history of major depressive episodes [27]. Cyclothymia is associated with multiple psychosocial problems in youth, which explains the frequency of misdiagnoses and the difficulty of identifying BD in the presence of more prominent externalizing disorders such as CD or ADHD.

Cyclothymia in children differs from the condition in adult, mainly in terms of the frequency and nature of manic episodes. In youth, these occur in faster cycles over a longer period and have mixed features (i.e., manic and depressive symptoms). Children with the condition exhibit periodic tantrums and aggression and are very irritable [28]. Yet major irritability should be considered as part of a wider set of symptoms and not in isolation. Longitudinal studies have shown that chronic irritability in children is specifically associated with higher risk of unipolar depression and ADs, but not manic episodes. These associations have also been demonstrated by genetic studies [29]. Irritability in children therefore merits careful examination. It is important to distinguish chronic irritability (more characteristic of generalized anxiety disorder, post-traumatic stress disorder, ADHD, and DMDD [30]) from episodic irritability more typical of bipolarity [29]. These are essential clinical distinctions because they determine the appropriate therapeutic response.

The developmental course of PBD also explains diagnostic delay. PBD is frequently preceded by mood symptoms that are often depressive and rather heterogeneous, quickly resolve, and usually go unnoticed. Subsequently, a major mood episode, in many cases requiring hospitalization, marks the beginning of illness. A diagnosis is more quickly reached during a manic episode than during depressive episodes or episodes with mixed features. However, prepubertal manic forms are often ambiguous, longer-lasting, and less pronounced symptomatically, making it difficult to note the transition between mood episodes, and are accompanied by fewer psychotic manifestations. On the one hand, this explains the need to distinguish prepubertal (< 13 years old) and adolescent (> 13 years) forms—the average age of onset being 15; On the other, it shows why PBD is frequently confused with DMDD during diagnosis. Chronicity and a preceding euthymic phase make it possible to tell them apart [31]. One of the pitfalls is that irritability and even mood lability are not that highly-specific, which is risky to false positives diagnosis.

It should be noted that, in children, BD subtypes are not stable over time: 25% of youth with bipolar II disorder (BP-II) may go on to develop BP-I, and 45% of those with bipolar disorder not otherwise specified (BP-NOS) will develop BP-I or BP-II [3].

Sleep disorders are additional hallmarks of PBD. Lopes et al. observed sleep problems in 66.4% of youth (children and adolescents) during manic episodes, and in 52.3% during depressive episodes. Nocturnal enuresis mostly occurred during depressive episodes, and disturbed sleep, especially during manic episodes, was more commonly reported by adolescents [32]. The polysomnographic study by Mehl et al. found poorer sleep efficiency and delayed onset of sleep [33]. Youth were more resistant to going to bed and more frequently woke up in the middle of the night, had nightmares and morning headaches, and fell asleep in school [34]. Studying sleep behavior is all the more relevant as the data collected can clearly distinguish PBD from unipolar depression, which is very often mistaken for the former. In PBD patients, stage 1 sleep is longer and stage 4 sleep shorter, while in patients with unipolar depression, sleep is characterized by reduced REM latency, increased REM density, and longer REM sleep overall [34].

Psychotic symptoms are also important in the diagnosis of PBD, and their prevalence may be as high as 87.5%. They are associated with high psychosocial risk and significantly more suicidal behavior and exposure to bullying. Mood-congruent psychotic features, mainly grandiosity, are most common. Also observed, particularly in adolescents, are hallucinations (primarily auditory, but also visual) and ideas of reference. In contrast with schizophrenia, these traits appear in the context of affective symptoms [35]. Current studies are specifically interested in the characteristics of emotional processing in patients with PBD. The processing of emotions involves high-level cognitive functions, including cognitive flexibility, recognition and categorization of facial expressions of emotion, the reward system, and sensorimotor processing. These mental functions recruit brain regions identified as diminished (e.g., gray matter of the prefrontal cortex and amygdala) or dysfunctional (e.g., corpus striatum and corpus callosum) in PBD patients [36]. Impairment of this system of regulation has direct consequences for attentional control and inhibition, explaining the high prevalence of comorbid ADHD. Abnormal functioning of the cortico-subcortical networks is thought to be behind cognitive and emotional dysfunction in individuals with PBD.

Emotional dysregulation interferes with the ability to adopt appropriate social behaviors, as the study by Goldstein et al. on social skills in PBD youth demonstrates. These youth possess the knowledge underpinning social skills, but not the ability to apply them well [37].

Rapid cycling in PBD and affective instability in borderline personality disorder share physiological, biological, and even genetic mechanisms [38]. Furthermore, both disorders are associated with a high prevalence of childhood trauma. Biederman et al. show that, in youth diagnosed with BP-I, remission of manic symptoms during adolescence is associated with significantly lower prevalence of antisocial personality disorder [39]. This highlights the importance of correctly diagnosing and treating manic symptoms in these children.

Diagnosing PBD

Prodromes

Relatively long-lasting manic symptoms may be detectable in children on the path towards PBD. Certain prodromes have been identified, including early disturbance of mood, anxiety, sleep, and psychomotor development. More specifically, a high level of energy, less need for sleep, difficulty thinking and concentrating, and loud speech are recognized as key prodromal symptoms. It is also harder for these children to recognize emotions communicated through facial expressions. Symptoms are thought to develop as early as 9 years before the beginning of PBD. An estimated 33% of children with a history of major depressive disorder will develop PBD [40].

Interview

PBD is diagnosed by clinical observation of patient symptoms and study of the patient's medical history. Clinical interviews need to be conducted by child and adolescent psychiatrists, and the following information must be gathered

from family members: perinatal, developmental, medical-surgical, and psychosocial events and history of abuse. Clinicians must seek to learn their child patients' psychiatric history, including any comorbidities. They should determine the frequency, intensity, number, and duration of mood episodes. The severity and psychosocial impact of symptoms must also be evaluated.

Clinicians may begin by referring to DSM-5 diagnostic criteria for BD. According to the meta-analysis by Van Meter et al., the most commonly reported symptoms in the pediatric population (for all bipolar subtypes combined) are increased energy (79%), irritability (77%), labile affect (76%), distractibility (74%), goal-directed activity (72%), euphoria (64%), pressured speech (63%), hyperactivity (62%), racing thoughts (61%), poor judgment (61%), grandiosity (57%), inappropriate laughter (57%), decreased need for sleep (56%), and flight of ideas (54%). However, which of these symptoms are present varies greatly between individuals [41].

Clinicians should seek signs recognized as essential to BD: episodic character of symptoms, irritability (considering intensity and duration), labile affect, and increased energy. PBD often has a subsyndromal presentation, with mixed and depressive symptoms [3], especially in young children. In adolescents, it more resembles the condition in adults, marked by alternating manic and depressive phrases. As in adults, depressive episodes are very frequent, and early detection and treatment of a bipolar depression are crucial for countering high psychosocial and suicidal risk. Clinicians have to recognize BD in adolescents presenting with behavior disorder, hallucinations, or suicidal ideation, after having confirmed the absence of a psychotic disorder, illicit drug use, or a neurological disease. Signs of a first manic episode may in fact be limited to severe thought disorder and hallucinations.

Psychometrics

Due to the complexity of the diagnosis, clinicians are strongly encouraged to use psychometric scales for orientation. The clinical interview is the goal standard evaluation and the diagnosis use of scales is limited. However in difficult cases they could help practitioners to objectively identify underlying bipolarity even when hypomanic, depressive, or mixed symptoms are not observed since parent-reports are better than child-reports for assessing mania. They help rule out differential diagnoses when faced with polymorphous symptomatology. Symptoms may only be attributed to PBD if they are mood-congruent. The pediatric version of the Cyclothymic-Hypersensitive Temperament Questionnaire designed by Kochman, Hantouche, and Akiskal can support a diagnosis, as cyclothymic-hypersensitive temperaments are specifically associated with BD [42]. Higher scores on the Child Behavior Checklist–Pediatric Bipolar Disorder (CBCL-PBD) profile, which is based on the Attention Problems, Aggressive Behavior, and Anxious/Depressed subscales, are predictive of future PBD [43, 44]. Yet Diler et al. report that CBCL-PBD scores are not significantly higher for 41% of PBD patients. The CBCL-PBD offers moderate diagnostic precision with a sensitivity of 57% and a specificity of 70%–77% [45] and it is especially inaccurate given it is high for those with chronic irritability as well and which have been erroneously categorized as BD in the past. The Strengths and Difficulties Questionnaire (SDQ), for youth 3 to 16 years old, can provide a picture of behavioral and emotional dysregulation. The Mood Disorder Questionnaire, in its Adolescent (A-MDQ, for self-evaluation) and Parent (P-MDQ, for evaluation by parents) versions; the parent version of the Young Mania Rating Scale (P-YMRS); and the General Behavior Inventory, in its Adolescent (AGBI, for self-evaluation) and Parent (PGBI-SF10) forms, are also of diagnostic value. Parent-administered assessments have been found to be more effective than both semi-structured diagnostic interviews and self-assessments for identifying bipolar youth [46]. In contrast, questionnaires completed by teachers are not very effective for diagnosis of PBD [47]. In spite of age-dependent differences, the most effective questionnaires (in descending order) are the PGBI-SF10, P-MDQ, and the P-YMRS [46]. The Kiddie Schedule for Affective Disorders (K-SADS) Mania Rating Scale and Child Mania Rating Scale for Parents (CMRS-P) are good psychometric instruments for the evaluation of manic symptoms and their severity. They are also helpful for clinicians in light of the frequency of comorbid ADHD and potential confusion of the disorders during diagnosis. The Child Bipolar Questionnaire (CBQ) detects 67% of ADHD patients without comorbid bipolarity, 77% of bipolar patients with comorbid ADHD, and 68% of bipolar patients without ADHD. It correctly identifies 76% of children who are bipolar and excludes 97% of children who are not [46]. Finally, the Conners' Abbreviated Parent Questionnaire, usually for ADHD assessment, boasts 73% sensitivity and 86% specificity for PBD subscores [46]. But none of these scales adequately assess whether symptoms are episodic and hang together.

Other questionnaires yielding complementary data include the Temperament and Character Inventory (TCI-125); the Temperament Evaluation of Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A), which defines five temperaments (i.e., hyperthymic, dysthymic, cyclothymic, irritable, and anxious); the Children's Depression Inventory (CDI); the Children's Global Assessment Scale (CGAS); and the Overt Aggression Scale (OAS).

Mood Diary

Mood charts and diaries are very useful for the evaluation and monitoring of mood symptoms and their impact on the overall functioning of patients. This information is important for the children, their parents, and clinicians. It may be used to identify triggers and assess treatment efficacy.

Screening for Comorbidities

Additional examinations may be ordered to carefully screen children and adolescents for comorbidities. For example, a neuropsychological evaluation of attentional and executive functions or IQ test (e.g., WISC-V or WAIS-IV) can be completed if comorbid ADHD is suspected. Speech-language pathology or orthoptic assessments may be requested when there is suspicion of an LD. A psychiatric evaluation in conjunction with appropriate psychometric assessments can uncover an AD, an SUD, suicidal behavior, or other features.

Physical Exam and Laboratory Tests

Although specific brain abnormalities have been described in this population, no laboratory testing or medical imaging procedures are currently able to confirm a diagnosis. However, to rule out a physical illness causing or exacerbating the mood disorder, the following laboratory analyses should be performed: complete blood count; electrolyte panel; liver function tests; lipid panel; fasting blood sugar test; determination of TSH, B12, and folic acid levels; iron tests (including ferritin blood test); and optionally, measurement of hormone levels. A urine drug screen may also be ordered. These tests will also be useful if a treatment is started. When epilepsy is suspected and an abrupt change in the behavior or mental state of the child or adolescent, or atypical headaches (NB: headaches are very frequent in PBD), are observed, an EEG or neuroimaging (MRI) may specifically be requested. Comorbid physical illnesses (e.g., obesity, type 2 diabetes, endocrine disorders, headaches, neurological disorders and epilepsy, cardiovascular disease, and asthma) are very common in PBD, and an appointment with a pediatrician may therefore be scheduled [48]).

Additional Evaluations

The severity of symptoms in the child or adolescent must be evaluated in order to initiate an appropriate treatment where necessary. This means detecting psychotic symptoms and noting their intensity; assessing lethality; measuring quality of sleep—for example, with a sleep diary, and if necessary, a sleep–wake EEG; identifying temperament and attachment style; and studying the patient's academic, social, and familial (e.g., psychiatric disorder in parent or family socioeconomic status) settings.

Therapeutic Intervention Strategy

The nature of therapeutic intervention will depend on the symptomatology of the disorder—i.e., type and intensity of BD, phase of illness, chronicity, comorbidities, age, and the social as well as familial context (e.g., child's and relatives' expectations, acceptance of treatment, possibility of psychotherapy). It is important to consider the disorder as a whole: despite its biological foundations, cognitive, behavioral, and environmental (including family interactions) factors greatly determine its course. Psychotherapy, for the child and the family, and parental involvement in treatment are crucial.

Lifestyle

Patients and their parents must be educated about the importance of a healthy lifestyle, prioritizing sleep, which is a key regulator of mood, and regular routines. We recommend a consistent sleep schedule, with set times for going to bed and rising, and enough hours of sleep, as determined by the child's age (3–5 years old: 10–13 h; 6–13 years old: 9–11 h; 14–17 years old: 8–10 h; 18–25 years old: 7.5–9 h). A diary can help with monitoring sleep and detecting irregularities to be addressed. Children should avoid consuming stimulants before bed and stick to schedules even on the weekend. They should have meals at regular times and engage in daily exercise, which helps regulate sleep. Screen time should be limited due to the negative impact on quantity and quality of sleep. With the child's participation, a daily schedule can be drawn up, including rest periods and allowing for adjustments in light of day-to-day variation in energy levels. The goal is to defuse anxiety and prevent frequent mood swings that can threaten the patient's emotional equilibrium.

Psychotherapeutic Interventions

These interventions can take the form of supportive psychotherapy for the child and family members; psychoeducation to managing manic or depressive episodes, comorbidities, and relapses, and to develop strategies for adaptation and treatment compliance; other specific forms of psychotherapy that have proven effective; or psychosocial therapy for externalizing disorders. Five psychosocial therapies may be indicated:

- Cognitive behavior therapy centered on the child and family members

- Multifamily and individual psychoeducation as supplementary treatment for bipolar or depressive youth
- Therapy centered on the family and adapted to adolescents with PBD
- Dialectical behavior therapy (DBT), especially for adolescents
- Interpersonal and social rhythm therapy (IPSRT)

Family-centered therapies have demonstrated their value in the treatment of youth with PBD, lengthening euthymic periods, shortening manic and depressive episodes, and lessening the severity of the disorder [48]. Those psychotherapies considered most effective are family psychoeducation, IPSRT, DBT, and skill development [49].

Medication

Caution must be exercised in extrapolating treatment recommendations for adults to children and adolescents. Furthermore, mood fluctuations differ between patients, and the developmental course of a disorder must be understood in order to adapt therapy. Lithium, antiepileptic drugs (i.e., valproate, carbamazepine, oxcarbazepine and lamotrigine), and second-generation antipsychotics (i.e., risperidone, aripiprazole, quetiapine, and olanzapine) remain the standard treatments. Lithium, valproate, and carbamazepine monotherapies offer similar efficacy in manic or mixed episodes without psychotic symptoms [3]. For treatment of manic and mixed episodes, recent data show that second-generation antipsychotics (risperidone in particular) are more effective and act faster than mood stabilizers. The FDA recommends use of risperidone, aripiprazole, and quetiapine for patients 10 to 17 years old, and olanzapine for those between 13 and 17. Administration of serotonin reuptake inhibitors (SRIs) to bipolar youth has not been sufficiently studied. Use of a mood stabilizer in conjunction with the SRI is advised to avoid exacerbating preexisting depression.

The treatment of comorbidities, and ADHD in particular, should also be considered depending on the severity of the disorder and its impact on daily living. Scheffer et al. found that administration of a psychostimulant after stabilization of manic symptoms with valproate was effective and did not increase side effects [50]. Treatment of any kind should be introduced in small doses, gradually increasing dosage in accordance with observed efficacy and side effects—for example, weight gain in the case of antipsychotics. The use of brain stimulation therapies such as transcranial magnetic stimulation (TMS) is still a subject of research.

Diagnostic Guide for Clinicians

Positive Diagnosis

Specific symptoms point to a possible PBD diagnosis:

- Mood instability with very rapid fluctuations and episodes with mixed features
- Flight of ideas
- Elation and inappropriate laughter
- Psychomotor agitation and high energy level
- Episodic irritability
- Overreaction and difficulty managing emotions
- Frequently, separation anxiety or other ADs, which may be severe, and comorbid ADHD
- Grandiose delusions, tendency to seek attention and demand recognition, and low frustration tolerance
- Family members with suggestive medical history
- Disinhibited and occasionally sexualized behavior
- Cognitive impairments related to visuospatial exploration, processing speed, working memory, and social cognition
- Frequently, headaches

Yet given its rarity, and the fact that clinical criteria specific to children and adolescents have yet to be formally defined, this diagnosis remains provisional and may quickly be discarded when stronger evidence in favor of attachment disorder, ADHD, or depression is available.

Time Required to Confirm Diagnosis of Bipolar in Children

The foregoing elements illustrates the difficulty of diagnosing BD in children. The absence of specific clinical criteria for the disorder in this population partly explains clinicians' hesitation diagnosing it in their young patients. A bipolar diagnosis has an impact not only on the life of the child but also on that of the family and on the child's schooling. Thus it is clear that the clinician needs time to reach a decision, while monitoring the child's state closely. Furthermore, an antipsychotic treatment initiated in childhood has considerable consequences. Though diagnosis of bipolarity in adolescence is easier, as its presence is then clearer, failing to diagnose it earlier means missing an important opportunity.

If not diagnosed in childhood, the disorder will progress, weighing heavily on the life of the adolescent, who may engage in antisocial behavior and dangerous activities (e.g., drug abuse, high-risk sexual activity, and suicidal behavior), or develop borderline or other personality

disorders. It can become firmly rooted during adulthood and impact family, social, and professional life. Childhood diagnosis also means access to available therapeutic interventions.

Further Elements for Diagnosis

To offer clinicians additional guidance, we end by reviewing ancillary clinical features of PBD identified by Scholl and Philippe [51]:

- One of the most original semiological observations of this study is the ill-being of PBD children when by themselves. Separation is difficult for them; they find it hard to remain alone without the adult, whose whereabouts they constantly seek to know; and going to bed takes longer. Certain findings of a psychological evaluation may suggest a feeling of loss or impaired individuation. Because of its resemblance with manifestations of attachment disorder, this symptom may be misinterpreted.
- These children are brimming with energy, and do not rest when tired.
- Often endearing, cheery, and easy-going, they may also be euphoric and exhibit heightened expression, hyperreactivity, and extreme emotional lability.
- They manifest excitability, appetency, and disinhibition; display verbal, phonemic, and figural fluency; tend to be impulsive and impatient; and seem thirsty for knowledge, asking inappropriate questions while lacking the cognitive ability to assimilate and process responses.
- Their attention is predominantly divided, rather than focused. They skip from one idea to another, or have several at once; can have trouble ordering their thoughts; and may experience learning delays.
- They tend to be excessively hyperactive.

Conclusion

According to recent studies, the vast majority of children and adolescents with PBD are not diagnosed, and when treatment is received, it is inadequate or unsuitable. This may be explained by the lack of a definition for the disorder specific to childhood and adolescence, and by the repercussions of diagnosis. While the term "PBD" has yet to be firmly established, childhood "cyclothymia" is recognized. Clinical presentation varies between childhood and adolescence. PBD symptomatology is at the crossroads of psychiatric disorders in this population, and this extensive overlap can lead to diagnostic errors.

Clinicians must be prepared to consider a PBD diagnosis when a child exhibits atypical, fluctuating behavior and very rapid mood fluctuations, being manic most of the time; overflows with energy; jumps from one idea to the next, displaying a general appetency for discovery; and manifests psychomotor agitation, impulsivity, emotional hyperreactivity, episodic irritability, fits of anger out of proportion with stimuli, opposition, anxiety, attachment issues (e.g., seeks adult and has fragile sense of self), and difficulty learning at school. During adolescence, PBD more closely resembles bipolarity in adults; depressive and (hypo)manic phases are easier to distinguish. In addition, symptoms of ADHD, CD, risky behavior, SUD, eating disorders, episodic irritability, or ADs should alert clinicians of a possible PBD.

Given its prevalence (despite its inconspicuous development) and poor prognosis, the proper diagnosis of PBD is a major public health issue. Treatment must first and foremost involve patients' families.

The specificities of the interaction between emotion regulation, attentional processes, and reactivity to positive and negative stimuli are a key focus of psychopathological research into PBD.

Summary

An established definition of child and adolescent bipolar disorder in international classifications would be of great importance. Currently this diagnosis does not overlap with the adult diagnostic criteria leading to dangerous over or under diagnosis. However its own specific symptoms can be observed in children and adolescents and they can be systematized in a separate description. Precise reference points will help clinicians to overcome the clinical confusion linked to the absence of a substantial definition. This is all the more important since comorbid symptoms are strongly associated and a precise symptomatic grouping is mandatory to reach the recognition of the disease. Consequently having a clearer picture of children and adolescents really affected by the disorder will help in the relevance of child and adolescent psychiatric diagnoses.

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