

Delayed Diagnosis of Pediatric Bipolar Disorder in a Community Mental Health Setting

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Objective. There is evidence that delayed diagnosis is a significant problem in adult bipolar disorder. It is not known if this also occurs among pediatric patients with this illness. The goal of this study was to determine the frequency of delayed and missed diagnosis of pediatric bipolar disorder in a community mental health setting. **Method.** Charts of youths with a diagnosis of bipolar I or II disorder, cyclothymia, or bipolar disorder not otherwise specified (NOS) who were treated at a community mental health outpatient clinic between February 2000 and April 2003 were retrospectively reviewed. **Results.** The mean number of years from the onset of mood symptoms until diagnosis of bipolar disorder was 5 years (SD = 3.5), with a maximum of 12 years. Only 2 patients (4.8%) received the correct diagnosis within the first year following symptom onset. For 33 patients (78.6%), 2 or more years elapsed, for 22 patients (52.4%) 5 or more years elapsed, and for 7 patients (16.7%) 10 or more years elapsed before they were diagnosed correctly. **Conclusions.** Although the study has several limitations, it suggests that delayed and missed diagnosis may be common among pediatric patients with bipolar disorder who receive treatment in community mental health settings. More rigorous studies are warranted and clinicians who work with pediatric patients should be aware of the risk of misdiagnosis of bipolar disorder in this population. (*Journal of Psychiatric Practice* 2006;12:128-133)

KEY WORDS: pediatric patients, bipolar disorder, misdiagnosis, community mental health, attention-deficit/hyperactivity disorder

Pediatric bipolar disorder is a severe illness, which can impair a child's developmental and emotional growth.¹⁻³ In recent years, pediatric bipolar disorder has been diagnosed in children and adolescents with increasing frequency.⁴ However, there are currently many gaps in our understanding of this condition.⁵⁻⁷ One area of limited understanding is the prevalence and outcome of delayed and missed diagnosis.

Given that there is little or no literature on the misdiagnosis of bipolar disorder in pediatric patients, we first reviewed what is known about misdiagnosis of bipolar disorder in adults. There is evidence that missed and delayed diagnosis in adult bipolar illness may be common. Ghaemi et al. found a misdiagnosis rate of 40% in hospitalized adult patients.⁸ Several other studies reviewed by Ghaemi et al. also suggested that the misdiagnosis of bipolar disorder in adult patients may be common. Two studies have found that 34% of adult patients with this illness wait at least 10 years after symptom onset before a diagnosis of bipolar disorder is made.^{9,10} [Editor's note: See also "Underdiagnosis of Bipolar Disorder in Men with

Substance Use Disorder" in this issue, p. 124.] It is unknown if this problem exists for pediatric bipolar disorder. However, Geller and Luby have reviewed evidence suggesting that pediatric bipolar disorder is also often underdiagnosed.¹¹

Several authors have suggested reasons why the diagnosis of pediatric bipolar disorder may be delayed or missed. One potential reason is that clinicians may not recognize pediatric bipolar disorder because it frequently has a different presentation than adult bipolar illness.^{7,11,12} Another possibility is that milder cases are tolerated by parents as an apparent phase of growing up.¹¹ Further, it may be that many parents of children with bipolar disorder have bipolar illness themselves and therefore do not recognize that their children's

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symptoms are pathological.¹¹ In addition, initial episodes often involve depression rather than mania, which may delay accurate diagnosis.^{11,13} Another problem is that individuals with hypomania appear very happy, so it can be difficult for a clinician to reconcile the happy child in the office with a parent's report of severe symptoms;¹¹ one recent study found that youths with bipolar disorder tend to underreport their symptoms compared to parental report.¹⁴ Finally, children with pediatric bipolar disorder often have significant psychiatric comorbidity and many of these disorders, particularly attention-deficit/hyperactivity disorder (ADHD), have significant symptom overlap with bipolar disorder.¹⁵

Exposure to trauma or other adverse life events might also lead to diagnostic confusion. Studies have linked maltreatment of children to symptoms that can be associated with pediatric bipolar disorder, such as aggression^{16,17} depression,¹⁸ anxiety,¹⁹ and externalizing symptoms.²⁰

Delayed recognition of bipolar disorder may lead to negative consequences for individuals with this illness. One study found that adult patients with unrecognized bipolar disorder had a greater risk of suicide attempts and hospitalizations and experienced higher treatment costs than patients whose bipolar disorder had been recognized.²¹ Further, delayed recognition of bipolar disorder may result in adult patients not receiving appropriate treatment or receiving treatments, such as antidepressants without a mood stabilizer, that can worsen their condition.^{8,9} It is likely that similar adverse consequences would occur for pediatric bipolar disorder.

The goals of this study were to determine the frequency and effects of delayed recognition and diagnosis of pediatric bipolar disorder among children and adolescents treated in a community mental health setting.

METHODS

Patient Sample

We retrospectively reviewed the outpatient medical charts of youths with a diagnosis of bipolar I disorder, bipolar II disorder, cyclothymia, or bipolar disorder not otherwise specified (NOS) who were treated at a community mental health outpatient clinic between February 2000 and April 2003. All diagnoses were made in accordance with criteria from the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision* (DSM-IV-TR)²² by the examining psychi-

atrist. All patients had clearly met DSM-IV-TR criteria for a manic or hypomanic episode at some point during their course of illness. The diagnosis of bipolar disorder NOS was given only to patients who had met criteria for a hypomanic episode but had never experienced depressive symptoms. The diagnosis of bipolar disorder was further confirmed during the chart review process by a board-certified psychiatrist with extensive experience treating bipolar disorder in children. There were no exclusionary criteria. This study was approved and exempted from Institutional Review Board review by the Executive Committee of the community mental health center where it was conducted.

Data Collected

Data obtained included years from symptom onset until the patient was diagnosed with bipolar disorder, sex, age, race, placement in foster care or adoption, whether the parents were divorced or separated, history of abuse or neglect, and whether the patient met diagnostic criteria for other comorbid psychiatric disorders and had a history of residential treatment or psychiatric hospitalization. The age of symptom onset was determined during the initial psychiatric evaluation. This was based on reports by parent or guardian concerning when significant mood symptoms began.

Statistical Analysis

Statistical analysis was performed using SigmaStat for Windows Version 3.00 (SPSS Inc., Chicago, IL). Groups were evaluated for normality using the Kolmogorov-Smirnov test.²³ Unpaired *t*-tests were used for the comparison of normally distributed continuous data, and Mann-Whitney Rank Sum tests were used for comparisons that were non-normally distributed.

RESULTS

Charts of 42 patients were identified who met DSM-IV-TR criteria for bipolar disorder and for whom it was possible to determine the time from symptom onset until diagnosis. This group was composed of 30 males (71.4%) and 12 females (28.6%), from 4 to 16 years of age (mean = 10.7, SD = 3.7). Thirty-seven (88.1%) were Caucasian, 4 (9.5%) were Hispanic, and 1 (2.4%) was other. Patient-specific information about socioeconomic status was not available in the chart. However, the majority of patients who receive care in the community mental health center were eligible for Medicaid and of

lower socioeconomic class. Eighteen (42.9%) had been diagnosed with bipolar I disorder, 12 (28.6%) with bipolar II disorder, 4 (9.5%) with cyclothymia, and 8 (19%) with bipolar disorder NOS. The mean age of onset of mood symptoms was 5.7 years (SD = 3.1). Most subjects had one or more comorbid psychiatric conditions. Fourteen subjects (33.3%) had experienced psychotic symptoms at some time during their course of illness. Some information about treatment history was available in the chart. Eleven subjects (26.2%) had had one or more inpatient psychiatric hospitalizations. Of these, the number of admissions ranged from 1 to 3. Two subjects (4.8%) had received long-term inpatient treatment in a state hospital and 2 (4.8%) had been in other long-term residential treatment. Seventeen subjects (40.5%) had received treatment with psychiatric medications prescribed by a primary care provider prior to referral to specialized mental health treatment. Fourteen subjects (33.3%) had a history of legal charges.

While complete genetic information was unavailable for a significant number of subjects (see below), for 37 subjects (88.1%) there was at least some information about family psychiatric history available. Among these 37 subjects, 33 (89.2%) had at least one relative with either a bipolar or unipolar mood disorder. These consisted of 21 (56.8% of the 37) who had at least one relative with unipolar illness, and 24 (64.9% of the 37) who had at least one relative with bipolar illness (because some subjects had relatives in both groups the total is greater than 100%). Among those with a family history of bipolar disorder, 20 (54.1%) had at least one affected parent and 5 (13.5%) had at least one affected sibling.

We found long delays from the time of symptom onset until the diagnosis of pediatric bipolar disorder for many subjects (see Table 1). The mean number of years from the onset of mood symptoms until a diagnosis of bipolar disorder was made was 5 years (SD = 3.5) with a maximum of 12 years and a minimum of less than 1 year. Only 2 patients (4.8%) received the correct diagnosis within the first year following onset of symptoms. For 33 patients (78.6%), 2 or more years elapsed before the diagnosis was made and, for 22 patients (52.4%), 5 or more years elapsed before they were diagnosed with bipolar disorder. Seven subjects (16.7%) were not diagnosed correctly until 10 or more years after symptom onset. Time from symptom onset until diagnosis was

Table 1. Years from symptom onset until diagnosis of pediatric bipolar disorder

	<i>All Subjects</i> (n =42)	<i>Bipolar I</i> (n =18)	<i>Bipolar II</i> (n =12)	<i>Cyclothymia/ Bipolar NOS</i> (n =12)
≤ 1 year	2	0	2	0
1–2 years	7	4	2	1
2–3 years	5	2	0	3
3–4 years	3	0	1	2
4–5 years	3	1	2	0
5–6 years	4	3	1	0
6–7 years	4	1	2	1
7–8 years	2	1	0	1
8–9 years	3	1	1	1
9–10 years	2	1	0	1
≥ 10 years	7	3	2	2
Mean (SD)	5.0 (3.5)	4.9 (3.7)	4.9 (3.5)	5.3 (3.4)

similar across diagnostic subgroups (Table 1). A *t*-test revealed no significant difference between the group of subjects with bipolar I or II disorder versus the group with either cyclothymia or bipolar disorder NOS ($t = -0.24$, $df = 40$, $p = 0.81$).

In some cases, the delay of diagnosis may reflect the time from symptom onset until mental health treatment was sought. However, only 26 subjects (61.9%) were given a diagnosis of bipolar disorder during their initial psychiatric evaluation at the community mental health center. For the remainder, the mean number of months of community mental health treatment before a correct diagnosis was made was 16.5 (SD = 10.1), with a maximum of 31 and a minimum of 1.

For 38 patients (90.5%), it was possible to determine whether stimulants or antidepressants had been prescribed before the diagnosis of bipolar disorder was made. Of these 38 patients, 21 (55.3%) had received antidepressants and 28 (73.7%) had received stimulants (the total is greater than 100% because some subjects had received both). All together, 34 (89.5%) had received at least one stimulant or one antidepressant. For 30 (71.4%) of the 42 patients in the sample, it was possible to determine if a stimulant or antidepressant had been given by a non-mental health prescriber. Of these 30, 17 (56.7%) had been prescribed one or both of these agents by a primary care provider.

A number of potential barriers to accurate diagnosis were identified (see Table 2). In only 4 cases (9.5%), was mania or hypomania actually observed by the treating

psychiatrist. Lack of availability of a complete psychiatric genetic history was also a potential barrier. For 10 patients (23.8%), the genetic history was either completely or partially unknown. Ten subjects (23.8%) were either in foster care or adopted, which could result in less information being available to the treating psychiatrist. Family conflict is another variable that could potentially confuse the diagnostic picture. In this sample, 30 patients (71.4%) had divorced or separated parents and 16 (38.1%) had been given a diagnosis of a relational problem. Eighteen subjects (42.9%) had been victims of abuse or neglect.

Psychiatric comorbidity may also make it more difficult to accurately diagnose pediatric bipolar disorder. Of the 42 subjects, 39 (92.8%) had at least one co-occurring psychiatric diagnosis (see Table 2). The mean number of comorbid psychiatric diagnoses was 2.8 (SD = 1.5), with the most common being ADHD ($n = 34$, 80.9%). Other common coexisting conditions were learning disability ($n = 26$, 61.9%), relational problem ($n = 16$, 38.1%), conduct disorder ($n = 9$, 21.4%) and post-traumatic stress disorder ($n = 6$, 14.3%). Of the subjects who had only one comorbid psychiatric disorder, the most common was ADHD ($n = 9$, 21.4%).

Several variables were evaluated for a possible association with years from symptom onset until diagnosis. There was no association between length of time until diagnosis and gender, history of hospitalization, or age of onset of mood symptoms. The number of years until diagnosis was also not associated with a history of psychotic symptoms, legal charges, or a positive family history of bipolar illness. Of the 42 subjects, 11 (26.2%) had attempted suicide. The mean number of years from symptom onset until diagnosis for this group was 7 years versus 4.3 years for the group who had not attempted suicide ($t = 2.282$, $df = 40$, $p = 0.028$).

DISCUSSION

To our knowledge, this is the first study to evaluate the frequency of delayed diagnosis among patients with pediatric bipolar receiving treatment in a community mental health setting. The primary limitations of this study are its retrospective design and the fact that a structured diagnostic instrument was not used. Therefore, misdiagnoses and selection bias are possibilities. This study was also limited to patients receiving treatment in a community mental health center, so that results may not generalize to other populations. Further, it would have been useful to have better characterized the sample with patient-specific information

Table 2. Potential barriers to accurate diagnosis of pediatric bipolar disorder (N = 42)

	<i>n</i>	(%)
Mania observed by psychiatrist	4	(9.5)
Limited genetic history	10	(23.8)
Foster care or adoption	10	(23.8)
Divorced or separated parents	30	(71.4)
Diagnosis of relational problem	16	(38.1)
History of abuse or neglect	18	(42.9)
Comorbid ADHD	34	(80.9)
Comorbid ODD	4	(9.5)
Comorbid conduct disorder	9	(21.4)
Comorbid learning disorder	26	(61.9)
Comorbid PTSD	6	(14.3)
Comorbid enuresis	6	(14.3)
Comorbid substance abuse	4	(9.5)
Comorbid low IQ (< 90)	7	(16.7)
Comorbid tic disorder	2	(4.8)
Comorbid OCD	1	(2.4)
Comorbid GAD	1	(2.4)

ADHD = attention-deficit / hyperactivity disorder.
ODD = oppositional defiant disorder
PTSD = posttraumatic stress disorder
OCD = obsessive compulsive disorder
GAD = generalized anxiety disorder.

about socioeconomic class and referral source; however this information was not available in the charts. We also relied on parent or guardian reports concerning age of onset of mood symptoms, which could have been inaccurate in some cases. Finally, this study did not address the opposite problem of patients being incorrectly diagnosed as having bipolar illness when they did not. For these reasons, findings from this study are very preliminary.

Although further research is needed, these data suggest several clinical implications. In this study, the mean age of onset of mood symptoms was 5.7 years (SD = 3.1). This suggests an early onset of illness in this population and is consistent with other reports that bipolar symptoms frequently begin during the preschool years.^{15,24,25}

This study also suggests that the diagnosis of pediatric bipolar disorder may commonly be delayed or missed in community mental health settings. In this study, 5 years or more elapsed from onset of symptoms until diagnosis for 52.4% of subjects. Therefore, pedi-

atric patients with psychiatric symptoms must be carefully screened for this condition. This is particularly important in primary care settings. We found that 89.5% of subjects had received either a stimulant or antidepressant prior to being diagnosed with pediatric bipolar disorder and that 56.7% had been given one or both of these agents by a primary care provider. This suggests that many patients initially receive psychotropic medications from a primary care provider and that agents with the potential to induce mania are frequently prescribed. This is consistent with a recent study of adults, which found that among 96 patients with bipolar disorder, none was identified as having this diagnosis by their primary care provider.²⁶

This study did not address two important factors that may have played a role in whether subjects were diagnosed correctly. The first is whether any objective diagnostic tools (i.e., mania scales) were utilized by any evaluating providers. The second is whether the subjects met DSM-IV-TR criteria for bipolar disorder at the time of symptom onset or initial presentation to the mental health professional. Without this information, it is impossible to determine if some cases of delayed diagnosis were the result of the initial manifestation of illness being sub-syndromal. Both of these issues will need to be addressed in future studies to better characterize factors that lead to missed diagnosis.

In this study, 34 subjects (80.9%) had comorbid ADHD. This finding is consistent with the literature¹⁵ and highlights the importance of a thorough evaluation of pediatric patients who present with ADHD symptoms in order to rule out comorbid bipolar illness. In addition to frequent comorbidity, another potential barrier to accurate diagnosis is the fact that mania and ADHD have considerable symptom overlap. Therefore, further research is needed to develop assessment tools which accurately differentiate between the two conditions.

The finding from this study that elicits the most concern is that 26.2% of subjects had attempted suicide and the mean number of years from symptom onset until diagnosis for this group was 7 years versus 4.3 years for the group who had not attempted suicide. Early identification of pediatric bipolar disorder may decrease the risk of suicide attempts, which is consistent with findings from a recent study of adults, which found that delay of diagnosis was associated with a greater risk of suicide attempts.²¹ Guidelines on the assessment and treatment of pediatric bipolar disorder have recently been published.²⁷ Hopefully, increased awareness of this disorder among healthcare professionals and improved screening for this condition will

result in earlier diagnosis and initiation of appropriate treatment.

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