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## *In This Issue*

This issue of *The Residents' Journal* features a section theme on child and adolescent psychiatry. The section begins with a review article by Michael Ascher, M.D., who discusses how childhood learning disabilities are defined in the field of psychiatry as well as the negative sequelae surrounding these disabilities and appropriate intervention. Next, Prachi Agarwala, M.D., presents a case report on a teenage girl who developed catatonia after completing treatment for limbic encephalitis. Finally, in a treatment in psychiatry article, Nicole Zuber, M.D., provides information on the assessment, differential diagnosis, and treatment options for children and adolescents exposed to traumatic events.

# Early Intervention for Schizophrenia, Part 2: A Review

Karthik Sivashanker, M.D.
New York Presbyterian Hospital, Weill Medical College of Cornell University, New York

Part one of this article reviewed the definition, epidemiology, and neurobiologic alterations of prodromal schizophrenia and introduced the difficulty of diagnosing the prodromal state (1). Part two will further assess the difficulties regarding accurate diagnosis of the prodromal state, with particular focus on measures to characterize symptoms, and highlight evidence for early intervention as well as ethical considerations and possible future directions for the field.

## Instruments Developed for Prodromal States

Various instruments have been developed to more rigorously characterize, track, and diagnose at-risk mental states. As early as 1966, Chapman (2) suggested that a disturbance of selective attention and perceptual abnormalities predicts psychosis. Arguing that these subthreshold symptoms represent early symptoms of schizophrenia, he developed a series of four scales that assessed physical and social anhedonia, perceptual disturbance, and magical ideation (3). Another early effort is found in DSM-III (4), which identified nine symptoms considered to be prodromal. Unfortunately, the Chapman scales and the DSM-III symptom criteria lacked positive predictive value and specificity (4, 5). The Comprehensive Assessment of At Risk Mental State incorporates seven dimensions of psychopathology and defines ultra-high-risk criteria. The ultra-high risk criteria increase the conversion rate from 10%–20% to 40%–60% at 1 year, with good reliability and predictive validity (5–9). This assessment scale encompasses recent-onset functional decline plus genetic risk as well as recent-onset subthreshold or brief-threshold psychotic symptoms (8). The presence of attenuated symptoms, disorganization, and depression and long-duration prodromal symptoms and poor function at intake are all considered significant predictors of conversion (5, 8, 9).

The Structured Interview of Prodromal Symptoms and the Scale of Prodromal Symptoms are aimed to identify and measure the severity of prodromal symptoms over time as well as the ability of the presence of these symptoms to accurately predict transition to full psychosis. In one study, outpatients meeting criteria for the prodromal syndrome were identified with high inter-rater reliability (kappa=0.81), a positive predictive value of 54%, and a specificity of 0.73 (10). Furthermore, the conversion of most patients within 6 months of initial assessment suggests that these criteria identify patients toward the end of their prodromal phase.

In the late 1960s, a group in Germany (Huber, Gross, Klosterkötter) created the Bonn Scale for the Assessment of Basic Symptoms (11–13). The group performed a unique long-term study based on the "basic symptoms" concept. It was observed that deficits in schizophrenia patients often appeared many years before the full illness, and these basic symptoms included subtle disturbances of drive, affect, speech, thought, perception, and motor action as well as vegetative symptoms. This led to a unique, prospective 10-year study (Cologne Early Recognition Study) of 160 patients who appeared to manifest prodromal symptoms. It was found that approximately 50% of patients developed schizophrenia within 10 years. Moreover, a patient with prodromal symptoms had a 70% probability of developing schizophrenia. The investigators subsequently developed the Schizophrenia Prediction Instrument, Adult version, a 40-item version of the Bonn Scale for the Assessment of Basic Symptoms. In summary, many scales have been developed with varying degrees of success, although their clinical utility remains controversial.

## Treatment of Prodromal Schizophrenia

Treatment of prodromal schizophrenia remains a subject of great interest, and few guidelines exist to direct physicians in their decision making for patients presenting with new attenuated symptoms. McGorry et al. (14) compared 59 ultra-high-risk patients receiving 6 months of active treatment (risperidone 1–3 mg/day plus modified cognitive-behavioral therapy [CBT]) with a comparison group receiving a needs-based intervention alone (14). They found that only 9.7% of patients in the active treatment group progressed to psychosis relative to 36% in the comparison group. However, by the 12-month follow-up evaluation, more patients in the active treatment group converted, and the difference in conversion rates between the active treatment and comparison groups was no longer statistically significant (19% versus 36%, respectively). Limitations to the study have been identified and include a lack of blinding of the subjects and raters, the combining of psychological and pharmacologic interventions (which clouds the ability to discern the relative contribution of each modality), difficulty in controlling for medication compliance, and possible inadequate medication dosing (15). A closer examination of medication-compliant patients showed a more positive effect. Nonetheless, the overall finding appeared to be that early treatment may delay, but not necessarily prevent, the development of psychosis.

The multisite PRIME study (Prevention through Risk Identification Management and Education), facilitated by McGlashan et al. (16), is a randomized, double-blind, parallel study of 60 prodromal patients that compared the outcome of a low-dose neuroleptic (olanzapine) with that of placebo in preventing or delaying psychosis onset. On initial intake, patients were characterized as help-seeking, with significant functional impairment (based on the Global Assessment of Functioning [GAF] scale), and were rated "moderately" ill on the

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Clinical Global Impression scale, with a range of attenuated positive and negative symptoms (17). The olanzapine group demonstrated significant improvement in prodromal symptoms at 8 weeks relative to the placebo group, but the lower conversion rate in the olanzapine group was not significant (16% versus 35%), perhaps due to a small sample size (18, 19). This was countered by several equivocal results between the two groups, including the number of patients exiting the study early, severity of illness at 12 months, scores on the GAF scale, Scale of Prodromal Symptoms, and Young Mania Rating Scale, positive/negative symptoms, depression change, extrapyramidal symptoms, akathisia, abnormal involuntary movement, and treatment-emergent adverse effects. Additionally, the olanzapine group had significantly greater weight gain and fatigue.

A Cochrane review provided a more global perspective on the data and analyzed all randomized, controlled trials designed to prevent progression to psychosis in individuals showing prodromal symptoms or to improve symptoms in those with first-episode psychosis (20). Seven studies totaling 941 patients were included, in addition to six smaller studies (N=56–83). However, the authors found that there were insufficient data available to draw definitive conclusions and that further studies were needed. A significant limitation of all of the studies analyzed was the short duration of symptoms (typically 6 months) for diagnosis of schizophrenia, which originated from ethical concerns.

More recently, long-chain omega-3 polyunsaturated fatty acids have emerged as a promising and more "natural" intervention for prodromal states. A randomized, double-blind, placebo-controlled trial of 81 individuals at ultra-high risk of psychotic disorder was conducted to determine whether omega-3 polyunsaturated fatty acids reduce the rate of progression to first-episode psychotic disorder in adolescents and young adults, ages 13–25 years, with subthreshold psychosis (21). An intervention of omega-3 polyunsaturated fatty acids (1.2 g/day) versus placebo was conducted over 12 weeks, followed by a 40-week monitoring period. The study found that 4.9% of patients in the clinical group converted compared with 27.5% in the placebo group (p=0.007). The difference in the cumulative risk of progression to full-threshold psychosis was 22.6% (95% confidence interval: 4.8–40.4). Moreover, omega-3 polyunsaturated fatty acids significantly reduced positive symptoms (p=0.01), negative symptoms (p=0.02), and general symptoms (p=0.01) and improved functioning (p=0.002) relative to placebo, with no difference in adverse effects. This was the first placebo-controlled trial to test the efficacy of omega-3 polyunsaturated fatty acids in a preventive role (22).

This unique trial suggests a role for a natural substance as an early interven-

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tion for schizophrenia, without the side effects associated with antipsychotics. Another interesting finding was that the group differences were sustained at 12 months, which, as the authors postulated, may have been due to the neuroprotective properties of omega-3 polyunsaturated fatty acids. Omega-3 polyunsaturated fatty acids can induce antiapoptotic (21, 23) and antioxidant factors (21, 24). In vivo proton magnetic resonance spectroscopy found that eicosapentaenoic acid can increase glutathione in the temporal lobes of first-episode psychosis patients, which may also protect neurons from oxidative stress (21, 25). However, the full mechanism remains unknown, and the investigators acknowledge several limitations to their analyses, with the most prominent being the modest sample size and the 12-month study period. Efficacy beyond this duration remains unknown.

## Ethics of Early Intervention for Prodromal States

Ethical considerations have garnered more attention not only from the medical community but also the general public, since increased scrutiny of the behavior of some pharmaceutical companies and disparities in their data have emerged. The increasing evidence for significant metabolic risks with no clear increased efficacy among many newer generation neuroleptics has raised questions concerning their application in a young population, which already suffers from an obesity epidemic. This is superimposed on the already well-understood side effects of antipsychotics, including possible long-term side effects such as tardive dyskinesia and increased cardiovascular mortality. Other ethical concerns have plagued the field as well. Neuroleptics are generally understood to treat the symptoms of psychosis, not the underlying etiology, and there are limited alternatives available for treatment. Several studies have examined psychological interventions (26) with some success, and some investigators have argued for the increased use of these interventions in the prodromal population (27). Despite the development of new diagnostic instruments, it still remains difficult to predict, with a reassuring level of accuracy, which patients are likely to convert. For those patients who do not convert during the course of a study, it remains unknown as to whether they will eventually convert, since few long-term studies exist. Finally, early labeling and stigmatization are particularly concerning for patients and their families. Thus, despite advances on numerous fronts in other areas of medicine for early intervention (e.g., cancer, coronary artery disease), these advances remain a tantalizing yet currently out-of-reach goal for schizophrenia.

## Future Directions for Research

Numerous directions for future research exist. The classic neurochemical paradigm of schizophrenia as a disease of dopaminergic transmission has required re-conceptualization as evidence for the involvement of other neurotransmitter systems grows (28). These other neurotransmitter systems represent new targets for both pre- and postonset duration psychosis. The observation that blocking *N*-methyl-D-aspartate-type glutamate receptors induces psychosis led to the development of glutamatergic models of schizophrenia as alternative paradigms for the pathogenesis of the illness (28). Other neurotransmitter systems (e.g., cholinergic system [29]) are also gaining increased attention. Many other directions for future research exist, including neuroprotective agents (lithium, glycine, eicosapentoic acid), corticotrophin-releasing hormone agonists, adjunctive estrogen for women, and improvement of screening and diagnosis by combining different modalities (e.g., imaging). Ultimately, further randomized, controlled trials are needed to clarify the significance of these potential therapies and preventative measures.

## Conclusions

Presently, the evidence for early intervention in schizophrenia remains inconclusive, with no clear guidelines for physicians. Although this uncertainty remains disconcerting for all involved, it also represents an opportunity for significant advances that may one day transform our ability to help patients with schizophrenia.

*Dr. Sivashanker is a resident at New York Presbyterian Hospital, Weill Medical College of Cornell University, New York.* *To read Part 1 of this article, see the April issue (http://ajp.psychiatryonline.org/cgi/data/168/4/A38/DC2/1).*

**Note From the Editor:**

*The May issue of* The American Journal of Psychiatry *includes a commentary by two leaders in the field, William T. Carpenter, Jr., M.D., and Jim van Os, M.D., Ph.D., M.R.C.Psych., who contribute to this discussion in their analysis of attenuated psychosis syndrome as a diagnostic category in DSM-5.*

*For further reading about early intervention and conversion to psychosis among high-risk individuals, see* The American Journal of Psychiatry *article by Jean Addington, Ph.D., et al., published in advance of print April 15, 2011.*

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# Differential Diagnosis of Psychosis

Tamer Wassef, M.D.
Department of Psychiatry and Behavioral Sciences, Meharry Medical College, Nashville, Tenn.

Resident physicians in psychiatry commonly encounter patients demonstrating symptoms of psychosis. However, psychotic symptoms alone do not clearly give physicians the information they may need to make an accurate diagnosis and thus develop a treatment plan that will best help the patient. It is therefore important to be aware of the genetic and medical conditions, illicit substance use, and iatrogenic causes that can underlie psychotic symptoms in order for the patient to receive adequate and appropriate treatment. In the present article, possible medical etiologies of psychosis are discussed.

Patients with new-onset psychosis should receive a thorough psychiatric and medical evaluation to determine the etiology of their symptoms. Farid and Mahadun (1) reported a case in which new-onset psychotic symptoms were caused by an underlying medical condition. They described the presentation of a 38-year-old Caucasian man who was seen in the emergency room after voicing paranoia and unusual ideas. At the time of evaluation, the patient complained of feeling increasingly stressed, anxious, and paranoid and further explained that he believed that he was being provoked by other people to get into fights and that people from his local community were involved in a conspiracy against him. The authors described the detailed medical examination that the patient underwent, which included a thorough neurologic examination, routine laboratory tests, and EEG. A detailed history revealed that the patient had severe crushing chest pain, for which he did not seek medical care, 6 months before presentation. While the results of the previously mentioned tests were within normal limits, a computerized tomography scan of the patient's brain revealed a lacunar infarct of the putamen region in the left basal ganglia. The infarct was treated conservatively, and the patient was subsequently started on a regimen of aripiprazole for his psychotic symptoms, with gradual improvement leading to discharge from the hospital in the following weeks.

The case reported by Farid and Mahadun (1) highlights the need for resident physicians to be aware of the many factors that may underlie psychotic symptoms. When developing a differential diagnosis for such patients, it is important to keep in mind potential medical causes. A partial list of medical conditions known to cause psychotic symptoms (2-4) is presented in Table 1. Residents can refer to these medical conditions while developing a differential diagnosis of psychosis.

*Dr. Wassef is a second-year resident and Vice President of House Staff in the Department of Psychiatry and Behavioral Sciences, Meharry Medical College, Nashville, Tenn.* *The author thanks M.S. Jahan, M.D., Shahid Ali, M.D., and Shagufta Jabeen, M.D., for their assistance with this article.*

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Table 1: Medical Conditions Contributing to Psychotic Symptoms

**Genetic disorders**
Klinefelter's syndrome
Fragile X syndrome
Velocardiofacial syndrome

**Endocrine disorders**
Thyroid disease (hyperthyroidism and hypothyroidism)
Hyperparathyroidism
Cushing disease
Addison's disease
Pheochromocytoma
Insulinoma

**Autoimmune disorders**
Systemic lupus erythematosus
Myasthenia gravis
Hashimoto encephalitis
Paraneoplastic limbic encephalitis

**Metabolic disorders**
Acute intermittent porphyria
Tay-Sachs disease
Niemann-Pick disease

**Neurologic disorders**
Epilepsy (particularly temporal lobe epilepsy)
Poststroke psychosis
Multiple sclerosis
Metachromatic leukodystrophy
Adrenoleukodystrophy
Wilson's disease
Huntington's disease
Fahr disease

**Infectious disorders**
Herpes simplex encephalitis
Neurosyphilis
Neuroborreliosis

# A Focus on Learning Disabilities and Psychiatry

Michael Ascher, M.D.
Department of Psychiatry, Beth Israel Medical Center, New York

The field of psychiatry is focusing increased attention on the way learning disabilities are defined, and greater efforts are being made to understand the associated developmental aspects, emotional functioning, and comorbid psychiatric problems. Although psychiatric residents receive broad training in the diagnosis and treatment of psychiatric disorders, the contribution of learning disabilities to the whole clinical picture is not often fully appreciated. In the present article, current definitions of learning disabilities are discussed as well as future nosology, negative sequelae, and interventions. The importance of early evidence-based educational interventions, patient advocacy, and psychoeducation for learning disabled patients and their families is emphasized. The hope is that this approach will more fully place a psychiatrist in a position to clarify a diagnosis and implement a treatment plan that focuses on improving the academic, behavioral, and emotional functioning of patients who suffer from learning disabilities.

## Prevalence and Definition of Learning Disabilities

It is estimated that the prevalence of learning disabilities among children is 9.7%, making them the most common developmental disabilities diagnosed in childhood (1). DSM-IV-TR refers to learning disabilities as learning disorders and separates them into academic areas related to reading, math, and writing (2). For those patients who do not meet the inclusion criteria for any of these academic deficits, there is another category referred to as not otherwise specified. Defined by difficulties in a specific academic area, these disorders reflect domain-specific performance "substantially below that expected, given the person's chronological age, measured intelligence, and age-appropriate education" (2). Published research has shown that these disabilities can be familial, heritable, and genetically based (3, 4). In addition, the presence of a learning disability increases the risk of comorbid disorders such as anxiety, depression, and attention deficit hyperactivity disorder (5). Learning disorders themselves may also secondarily cause emotional, social, and behavioral disturbance.

DSM-IV-TR criteria for learning disorders are currently discrepant with those of the Individuals with Disabilities Education and Improvement Act (IDEA), a federal law that guides how schools provide special education and related services to children with disabilities. The DSM-5 Neurodevelopmental Work Group is examining DSM's definition of learning disabilities to make it more aligned with that of IDEA 2004 (6). DSM-IV-TR utilizes a discrepancy model in its determination of who meets criteria for a learning disability while IDEA states that this method is not necessary for diagnosis. The discrepancy model is based on the difference between an individual's measured IQ and his or her performance on achievement tests. The threshold difference for identifying learning disabilities varies widely, between 1.5 and 2 standard deviations, based on the interpretations of clinicians and school districts. There have been many problems with these criteria. First, many critics affirm that the discrepancy model tends to overdiagnose children with higher IQs (7). It also has been shown that defining learning disabilities in this way results in a "waiting to fail" approach because children are often diagnosed late in grade school when the academic achievement becomes sufficiently low to create a discrepancy with IQ, at which point interventions have poorer responses (8). Finally, it has been shown that many children with learning differences do respond to intervention regardless of the gap between IQ and achievement (9).

The DSM-5 Neurodevelopmental Work Group also hopes to provide clinical guidelines that discuss behavioral manifestations in different developmental periods (6). The work group will likely omit reading and math disorders as well as disorders of written expression as discrete types of disorders. Instead, the diagnosis would be subsumed under the general category of learning disability. In order to conclusively make the diagnosis, multiple sources of information will be used to assess learning. Moreover, the evaluation must be based on "an individually administered, culturally appropriate, and psychometrically sound standardized measurement of academic achievement" (6).

## Negative Sequelae

Children and adolescents with learning disorders are at a significantly increased risk for negative outcomes with regard to their emotional, social, and behavioral development. The negative sequelae of learning disabilities are well documented in the literature. Many children and adolescents with learning disabilities can develop a low self-concept and lack social competence (10, 11). Students with learning disabilities express more loneliness, feel less integrated in school, and are victimized more often than students without a learning disability (12). Likewise, children with learning disabilities have higher rates of depression and anxiety than students without these disabilities (10, 13). Margalit and Raviv (14) found that children with learning disabilities have an increased prevalence of somatic complaints, such as fatigue, compared with children without learning disabilities. They postulated that this may be either a coping strategy (i.e., to avoid school) or the somatic manifestation of unrecognized anxiety.

In a longitudinal study conducted by McNamara and Willoughby (15), adolescents with learning disabilities engaged more frequently in risk-taking behaviors, such as smoking, marijuana use, delinquency, aggression, and gambling, than

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adolescents without learning disabilities. In the 2001 National Longitudinal Study of Adolescent Health (16), adolescents with learning disabilities had twice the risk of emotional distress than other adolescents, and girls with these disabilities were at twice the risk of attempting suicide and of engaging in violent behavior than their peers.

Less widely understood is that learning disabilities continue to persist into adulthood and can interfere with employment and social situations. In a 3-year study on learning disabilities conducted by the Learning Disabilities Association of Canada (17), adults with learning disabilities were more likely to report suicidal thoughts, depression, and distress and were less likely to be working, less likely to handle unexpected problems appropriately, and more likely to still be living with a parent when compared with adults without these disabilities.

## Intervention

Fortunately, there is an increasing amount of literature on the ameliorative effect of timely and thorough evaluations and appropriate interventions with regard to learning disabilities. Particularly, a comprehensive treatment approach based on assessment of all clinical factors has been shown to improve children's academic, behavioral, and emotional functioning (18). Moreover, in a study conducted by Kellam et al. (19), the improvement of reading and math skills appeared to reduce or prevent later emotional disturbances such as depression. Wilder and Williams (20) showed that students with learning disabilities can benefit from instruction geared toward abstract higher-order comprehension when it is designed according to specific requirements. Early intervention improves outcomes for most children with disorders of learning, attention, and cognition (21).

## Conclusions

In summary, although there continues to be discussion surrounding the precise definition and diagnostic methods used to identify a learning disability, the literature clearly establishes that the co-occurrence of behavioral and emotional problems is common and can lead to poorer outcomes. Such problems may be secondary to the learning disability or reflect independent comorbid conditions. With psychotherapy (both individual and group), psychiatrists can play a critical role in addressing and treating

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emotional, social, and familial problems. Although there are no specific medications to treat learning disabilities, there is a role for psychotropic drug treatment for symptoms such as anxiety, depression, behavioral disturbances, and hyperactivity and or/inattention if such symptoms exist and impair functioning.

The psychiatrist can also act as an advocate for the patient and family to ensure that the child is given appropriate accommodations and receives help in dealing with the learning disability. Moreover, the psychiatrist can offer a great sense of hope and encouragement by educating patients and families about many commonly held myths surrounding learning disabilities. A learning disability does not mean that children are intellectually impaired or unable to learn; they just learn differently and usually require accommodations to succeed and maximize their potential. Through early intensive and multidisciplinary intervention, with attention to the emotional aspects of a learning disability, patients can develop a strong sense of self-esteem and interconnectedness with peers and also achieve academic and, ultimately, occupational success.

*Dr. Ascher is a second-year resident in the Department of Psychiatry at Beth Israel Medical Center, New York.*

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*Case Report*

# Catatonia in an Adolescent Patient With Anti-*N*-Methyl-D-Aspartate Receptor Encephalitis: Successful Treatment With High-Dose Lorazepam

Prachi Agarwala, M.D.
Department of Psychiatry, University of Michigan Medical School, Ann Arbor, Mich.

The present report describes an adolescent girl who developed catatonia after completing treatment for anti-*N*-methyl-D-aspartate (NMDA) receptor encephalitis, a form of limbic encephalitis. Once the diagnosis of catatonia was determined, the patient was treated with high-dose benzodiazepines. This case is unusual because catatonia has not been previously reported following the acute phase of anti-NMDA receptor encephalitis and treatment for the illness.

## Case

A 16-year-old girl with no previous psychiatric or neurological conditions was hospitalized with a 3-day history of seizures and memory difficulties. Her seizures consisted of rhythmic jerking in all extremities, with right deviation of the head. A physical examination was notable for inattention and dizziness. Laboratory tests revealed CSF lymphocytosis with negative cultures. Results from a complete blood count, comprehensive metabolic panel, and blood cultures were within normal limits. EEG findings were significant for frequent left posterior nonmotor seizures. Phosphenytoin, at 5 mg per kg, was administered. Despite therapeutic serum levels (range: 10.0–27.8 µg/ml) and a subsequent EEG with a normal background pattern, the patient remained agitated, complaining of hearing music and attempting to pick objects out of the air. Haloperidol (5 mg twice daily) was started to manage suspected delirium. On day 11 of the patient's hospitalization, the diagnosis of limbic encephalitis was considered in light of new-onset seizures (which were controlled), ongoing psychiatric symptoms (despite controlled seizures and treatment with haloperidol), and lack of clear infectious process. An ovarian teratoma (associated with anti-NMDA receptor antibodies) was discovered via pelvic ultrasound and surgically removed on day 13. A standard 5-day course of intravenous immunoglobulin was initiated. Detection of anti-NMDA receptor antibodies in the patient's CSF confirmed the diagnosis. After 17 days of hospitalization, removal of the teratoma, and immunotherapy, she was more alert, responsive, and interactive.

Within 24 hours of her last intravenous immunoglobulin treatment, the patient deteriorated acutely. She began repeating phrases (echolalia) and movements (echopraxia) of other people and displaying repetitive spitting behaviors (stereotypy) as well as disturbed voluntary movements (wriggling fingers, unusual postures). In addition, she demonstrated waxy flexibility (initial resistance to repositioning) and verbigeration (repetition of phrases). Additional laboratory findings were normal, including complete blood, comprehensive metabolic panel, and total and free phenytoin levels as well as EEG results, which were negative for seizure activity or slowing. Catatonia was diagnosed based on the constellation of symptoms, including abnormal movements (stereotypy, echophenomena), inhibition of movement (gegenhalten), disturbed volition (posturing), and excitement (verbigeration and impulsivity).

The Bush-Francis Catatonia Rating Scale, a 23-item scale with high reliability and validity in the adult population, facilitated communication regarding the diagnosis and monitoring of the patient's response to treatment (1). Her initial score was 29. Within 45 minutes of a 2-mg lorazepam challenge, her score decreased to 23 and she demonstrated reduced echophenomena and stereotypic movements. Scheduled lorazepam treatment (3 mg/day) was initiated and titrated every 2 days to a total dose of 12 mg daily. A four-times-per-day dosing schedule was used to minimize side effects. The patient's blood pressure prior to lorazepam treatment ranged from 110–120 mmHg/60–65 mmHg. At discharge, her blood pressure was 100/54 mmHg. Bush-Francis Catatonia Rating Scale ratings decreased as lorazepam dosing increased. The patient was discharged with a score of 1 for mild impulsivity on day 38.

## Discussion

Limbic encephalitis is an inflammatory process characterized by varying antibodies targeting the nervous system and neuronal loss in the hippocampus and amygdala. Anti-NMDA receptor encephalitis usually affects young women and is associated with ovarian teratomas. Patients can present with memory disturbance, psychosis, and seizures as well as changes in mood, behavior, or functioning (2). Approximately 75% of patients with anti-NMDA receptor encephalitis dramatically improve with immunotherapy and tumor resection (3). However, up to 10% of patients die prior to definitive diagnosis. Among those patients who do not dramatically improve with immunotherapy and tumor resection and do not die prior to diagnosis, ongoing memory difficulties and behavioral disinhibition is common (2, 3).

Patients with anti-NMDA receptor encephalitis may have catatonia-like symptoms upon initial presentation and prior to treatment of encephalitis (2).

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Catatonia is a syndrome of disturbed motor activity, negativism, and peculiar voluntary movements. This syndrome may lead patients to become medically compromised secondary to reduced food and fluid intake. Although catatonia is most often described with psychotic and affective disorders, it can be associated with a variety of medical conditions (infectious, neurological, and toxic illness) (4).

## Conclusions

Psychiatrists should be aware that catatonia is related to a variety of medical disorders, notably limbic encephalitis. Successful treatment of the medical condition may not result in remission of catatonia. A literature review found that benzodiazepines and ECT are the only consistently effective treatments (5). These treatment modalities may be necessary, independent of treatment for the underlying condition. In the present case, high-dose lorazepam, with a rapid titration, was used to achieve a more favorable outcome.

*Dr. Agarwala is a PGY-V Child and Adolescent Fellow in the Department of Psychiatry, University of Michigan Medical School, Ann Arbor, Mich.* *The author thanks Drs. Sarah Mohiuddin and Neera Ghaziuddin for their support and mentorship.*

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*Treatment in Psychiatry*

# Treatment in Childhood Trauma

Nicole Zuber, M.D.
Department of Psychiatry, Beth Israel Medical Center, New York

## Case

"Sarah," a 7-year-old girl, was referred to psychiatry by her elementary school counselor for emotional liability. Over the last 4 months, she was socially withdrawn and noncompliant with classroom rules and would strike herself as well as others. She would curl up into a ball on the floor to hide, make frequent comments that nobody loves her, and touch peers inappropriately. These behavioral changes started following a drug raid on the family home in which her older brother and mother were arrested for drug dealing. The child was subsequently removed from the home by officials and placed in foster care. She was eventually returned home to live with her mother and an older sister while her brother remained in jail.

Sarah's mother confirms that she was traumatized by the drug raid and being removed from her family. The mother also reports that since returning home, Sarah reacts to various frustrations with intense sadness and attention seeking behavior and requires constant validation that "she is loved." The child has been "needy" and "clingy" and has made statements indicating that she wants to die. She has also scratched herself when her demands have not been met. When talking with Sarah, she has been avoidant and refused to discuss the raid but has reported that she worries most about her family.

Sarah has been treated with family therapy and trauma-focused individual therapy. Improvements in attunement between the mother and child have been observed. The child has progressed in individual therapy in areas of self-regulation and in verbally expressing her emotions. How this case should be evaluated and managed is addressed in the present article.

Children and adolescents are exposed to trauma at high rates in the United States. In a nationally representative survey among 12- to 17-year-old youth, conducted by the National Child Traumatic Stress Network, 8% reported a lifetime prevalence of sexual assault, 17% reported physical assault, and 39% reported witnessing violence (1). Traumatic events include abuse (physical, sexual, emotional) and neglect, domestic, community, or school violence, accidents or natural disasters, medical traumas, the distressing death of significant others, and unexpected/terrifying experiences.

One study found that more than two out of three children reported being exposed to at least one traumatic event by age 16 years, with 13.4% of these exposed children developing some posttraumatic stress disorder (PTSD) symptoms (2). Not all children exposed to trauma develop PTSD symptoms, and it has been reported that the magnitude of the stressor can affect the development of these symptoms (3). Traumatized children can present with an assortment of symptoms, including cognitive issues, disorganized and agitated behavior, acting out, aggressiveness, learning problems, withdrawal, poor skill development, sleep, and appetite, somatic complaints, and feelings of guilt, worthlessness, and helplessness.

Exposure to traumatic events can lead to numerous mental health consequences for children and adolescents. Studies have reported that the child/adolescent response to trauma is different from that of adults, and evidence has suggested that children's response to trauma can be enduring and detrimental (4, 5). It has also been noted that children possess immature social and cognitive capacities that might moderate the effects of trauma or influence the expression of symptoms and that they often present with subclinical symptoms of PTSD (3, 4). It has been shown that children exposed to trauma can have almost double the rate of psychiatric disorders relative to those not exposed and that children displaying PTSD symptoms are more likely to be older, have a history of exposure to trauma and of anxiety, and come from an adverse family environment (2).

## Trauma Assessment

Numerous factors need to be taken into consideration when evaluating symptoms in children and adolescents exposed to different stressors. These factors should include the frequency and intensity of symptoms (4), levels of symptoms and how they impair the child (2), event type, recent event history, and developmental context (3). A comprehensive approach should be used, with the clinical interview focusing on gathering information from significant caregivers in the child's life, observing interactions between the caregivers and child, and reviewing specifics of the trauma, including reactions by the child and caregivers, changes in the child's behavior, resources in the environment that stabilized the situation, the quality of the child's primary attachment relationships, and ability of caregivers to facilitate the child's development. Various standardized measures should also be used, such as the PTSD Semi-Structured Interview and Observational Record for Infants and Young Children (age: 0–4 years), the Trauma Symptom Checklist for Children (age: 3–12 years), and the Traumatic Events Screening Inventory-Parent Reported Revised (age: 0–6 years). Additionally, tools can be used to assess parenting stress as well as strengths, such as the Parenting Stress Index and the Davidson Trauma Scale (6).

## Differential Diagnosis

Numerous symptoms are present in children who have been exposed to trauma, and these symptoms often meet various

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criteria for different diagnoses within DSM-IV-TR. These disorders can occur independently, be comorbid with PTSD, or be the result of the trauma. It has been reported that higher levels of PTSD-related symptoms were associated with higher levels of psychiatric disorders (with rates of 52.6% for painful recall and 59.5% for subclinical PTSD) (2). This same study showed that with increasing trauma exposure, there was a dose-dependent relation between trauma and psychiatric disorders and trauma and PTSD symptoms, especially with depressive and anxiety disorders.

## Treatment

Limited research on treatment options for traumatized children exists. Numerous studies on adult psychopharmacological and psychotherapeutic options have been adapted in ways to treat children and adolescents, but continued research is needed to explore specific treatment approaches in traumatized children and adolescents (7–9). Many reports have shown that the treatment for traumatized children should include a comprehensive assessment addressing the severity and degree of the child's impairment as well as comorbid psychiatric disorders and psychopharmacological and psychotherapy options (5, 8).

Trauma-focused psychotherapies have been studied in various trials and have been shown to be an effective treatment for children and adolescents exposed to traumatic events. These therapies include cognitive-behavioral therapy (CBT) and psychodynamic psychotherapy (9, 10). Smith et al. (9) reported that after trauma-focused CBT, 92% of participants no longer met criteria for PTSD, and CBT gains were maintained at the 6-month follow-up evaluation. Evidence supports an initial trial of trauma-focused CBT or other psychotherapy for most children with PTSD symptoms before adding medication (10).

As noted by Taylor and Chemtob (7) as well as Strawn et al. (8), the medications most frequently used when treating traumatized children are selective serotonin reuptake inhibitors, such as citalopram, or antiadrenergic agents, such as prazosin or clonidine, but limited results from randomized, controlled trials demonstrating significant advantages for their use have been reported. Other treatment options, such as antipsychotics and mood stabilizers, have limited data to support their use in children and adolescents (7, 8, 10).

*Dr. Zuber is a third-year resident in the Department of Psychiatry, Beth Israel Medical Center, New York. Dr. Zuber will begin a Child and Adolescent Psychiatry Fellowship at Yale University in July 2011.*

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# The Psychiatric Consultation Document

Jonathan Avery, M.D.
Department of Psychiatry, Weill Cornell Medical College, New York

Despite an increase in the literature over the past decades regarding the field of consultation-liaison psychiatry, there has not been much focus on how to write the psychiatric consultation document. Almost 30 years ago, Garrick and Stotland (1) co-authored what is perhaps the most thorough article on this subject. There have been few attempts to replicate or update their work (2–5). More recent literature on the psychiatric consultation document has focused on creating computerized, universal document forms, with the goal of writing "better notes faster" (6–7).

For most sections of today's computerized consult document, one simply has to click on boxes to generate results. The history of present illness, Mental Status Examination, and assessment and plan are the three components of the psychiatric consultation document that still require considerable thought as well as art. The psychiatry consult must present information in a way that not only provides a thorough psychiatric evaluation but also addresses the concerns of the patient and the consultee as well as other members of the hospital staff. These components will help formulate how the consult psychiatrist communicates information with these individuals and should be written in a concise manner that all can decipher and appreciate.

## History of Present Illness

The opening statement is the most important part of the history of present illness, since it sets the stage for the rest of the note. The opening statement should include the patient's age, relevant personal data, psychiatric history (or lack of), pertinent medical problems, the reason for medical hospitalization, and the reason for the consult. One should eschew red herrings in this first sentence and instead develop a synthetic understanding of the patient through the prism of his or her chief psychiatric complaint.

Perhaps the most crucial part of the opening statement is to explicitly state and clarify the consult question. A common mistake that new psychiatry consult residents make is that they write the document in a manner in which the reader does not learn what the consult is until halfway through the note. Further, the consulting team often does not even have a question or a firm understanding of why they are calling the consult, or they are asking the wrong question altogether. The opening statement should formulate a question from the consultant's clinical impression of the patient that one can answer.

The remainder of the history of present illness should be written as if one was writing an argument for the diagnosis that is being contemplated. The second and third sentences should typically amplify the opening statement. The history of present illness can provide a chronological account of the patient's medical history that directly relates to the current problem. However, a chronological account will often stray from the consult psychiatrist's goal of providing a targeted, information-filled history of the present illness. One should also address the questions that the reader will have about the case (i.e., pertinent negatives) in this section.

## The Mental Status Examination

The Mental Status Examination provides a clinical picture of the patient at a given moment and is useful to track over time. This examination usually consists of a general description of the patient (including appearance, behavior, psychomotor activity, and attitude toward examiner) and his or her speech, mood and affect, thought processes and content, sensorium, cognition, insight, and judgment. This is the one section where the psychiatrist should err on the side of being over-descriptive and inclusive, since patients in the hospital often have both medical and psychiatric illnesses that make their symptoms difficult to decipher. A Mini-Mental State Examination should be included with the Mental Status Examination for most patients, especially for those suffering from dementia or delirium. While results on the Mini-Mental State Examination do not necessarily give a diagnosis against or for dementia or delirium, serial examinations can provide important information about the progress of a patient. The clock drawing test and other neuropsychiatric assessments may be beneficial as well.

## Assessment and Plan

In the assessment, one should not simply reiterate the case but rather summarize the most important points. A differential diagnosis should then be formulated and explained. It is not sufficient to simply write "delirium" for the assessment; one must explain how the patient's problems with arousal and intermittent agitation likely represent a delirium and discuss other possible diagnoses (e.g., dementia, psychosis).

As Garrick and Stotland noted, "a discussion of the dynamics of the patient as an individual in the medical care situation" is often vitally important in the assessment as well (1). A discussion of central conflicts and their effect on the patient's behavior can be helpful, especially for personality-disordered patients (8). Discussions of the ways certain patients interact with staff as well as others often facilitate improved care and enhanced understanding between patients and staff.

The plan must attempt to answer any questions asked of the consultant because the consultee will ultimately decide which recommendations he or she will decide to follow. Garrick and Stotland (1) suggested a conceptual scheme for organizing the recommendations, which consists of the following three catego-

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ries: 1) suggestions for further workup to clarify the diagnosis; 2) suggestions for management by the consultee, including pharmacologic, social, and psychotherapeutic; and 3) suggestions for management by the consultant or care by a specialist in psychiatry (i.e., recommendations for inpatient or outpatient psychiatric treatment).

It is also important to address the safety of the patient. That is, the need for 1-to-1 observation should be addressed for a suicidal patient, and the need for security should be addressed for a dangerous patient who wishes to elope. Further, the plan should always indicate how involved the psychiatry consult will be in the management of a patient.

## Conclusions

The art of writing the psychiatric consultation document is something that should be debated and constantly revised. It forms the basis for how psychiatrists communicate among themselves and with patients and other medical professionals. It is a unique opportunity for the clinician to communicate "effective, lasting, implicit, and explicit messages about psychiatry theory and practice and about psychiatrists as experts, colleagues, and individuals" (1).

*Dr. Avery is a second-year resident in the Department of Psychiatry, Weill Cornell Medical College, New York.*

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*Letter to the Editor*

# Psychiatric Emergency Room Visits and Weather Variables

To the Editor: In the March 2011 issue of *The Residents' Journal*, Dawn Flosnik, M.D., (1) concisely yet thoroughly reviewed studies that found no relationship between lunar phases and psychiatric emergency room presentations, psychiatric hospitalizations, or exacerbations of mental illness. I would like to add that several studies have identified a relationship between weather conditions and the number of psychiatric emergency room visits.

Briere et al. (2) analyzed meteorological variables and air pollution indices to determine whether a relationship existed between these factors and the number of emergency room visits. Barometric pressure was negatively correlated with the number of depression diagnoses given, and the degree of air pollution was positively correlated with the number of emergency room visits. The authors proposed that pollution might exacerbate dysphoria and cause an increase in emergency room visits.

Another study, conducted by Schory et al. (3), explored a possible relationship between weather variables and the number of psychiatric emergency room visits, observation bed admissions, and inpatient admissions. Barometric pressure was negatively correlated with the total number of visits. The authors hypothesized that low barometric pressure may be related to impulsivity (prompting an emergency room visit). They also proposed that adverse weather resulting from low barometric pressure may cause people to seek shelter in the form of an emergency room visit.

Although the number of psychiatric presentations is not related to lunar phases, it has been found to be related to certain weather variables. As Dr. Flosnik noted, future studies should examine whether a relationship exists between lunar phases and other events that constitute a "bad call night." In addition, causes behind the relationship between the weather and psychiatric emergency room visits should be explored.

**Jonathan R. Scarff, M.D.**

*Dr. Scarff is a second-year resident in the Department of Psychiatry and Behavioral Sciences, University of Louisville, Louisville, K.Y.*

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1. Flosnik D: Lunar madness: does the full moon guarantee a bad call night? Am J Psychiatry Res J 2011; 3:5
2. Briere J, Downes A, Spensley J: Summer in the city: urban weather conditions and psychiatric emergency-room visits. J Abnorm Psychol 1983; 92:77–80
3. Schory TJ, Piecznski N, Nair S, el-Mallakh RS: Barometric pressure, emergency psychiatric visits, and violent acts. Can J Psychiatry 2003; 48:624–627

# Response to Scarff Letter

To the Editor: I would like to thank Dr. Scarff for his interest in my article. He raises interesting points regarding the influence of weather on emergency room visits.This would be an exciting and useful phenomenon to further explore, especially given the recent increase in the general public's curiosity on climate-related issues.

**Dawn Flosnik, M.D.**

*Dr. Flosnik is a second-year resident in the Department of Psychiatry and Behavioral Sciences at the George Washington University School of Medicine and Health Sciences, Washington, DC.*

# TEST YOUR KNOWLEDGE

In preparation for the PRITE and ABPN Board examinations, test your knowledge with the following questions.
(answers will appear in the next issue)

*This month's questions are courtesy of Nicole Zuber, M.D., from the Department of Psychiatry, Beth Israel Medical Center, New York. (Please see the accompanying Treatment in Psychiatry article in this issue.)*

**Question #1**
Posttraumatic stress disorder (PTSD) in children and adolescents is not associated with which of the following:

A. Behavioral, cognitive, psychological, and physiological signs and symptoms
B. Comorbid diagnoses of anxiety or depressive disorders
C. Responses that can be enduring and detrimental
D. A favorable family environment with a history of psychotic disorders

**Question #2**
An 11-year-old boy is seen in the clinic for increased disorganized and agitated behavior following the separation of his parents as well as the recent death of his maternal grandmother. His assessment should include which of the following:

A. Gathering information only from parents/caregivers
B. Gathering information only from the interview with the child
C. Using only standardized questionnaires
D. Using clinical interviews and standardized measurement

**Question #3**
Treatment of PTSD in children and adolescents typically includes which of the following:

A. Antipsychotic medication
B. Combination of trauma-focused psychotherapies
C. Benzodiazepine medication
D. Exposure therapy

## ANSWERS

**Answers to April Questions. To view the April Test Your Knowledge questions, go to http://ajp.psychiatryonline.org/cgi/data/168/4/A38/DC2/1.**

**Question #1.**
Answer: A. Phencyclidine

**Question #2**
Answer: E. Low abuse potential

We are currently seeking residents who are interested in submitting Board-style questions to appear in the Test Your Knowledge feature. Selected residents will receive acknowledgment in the issue in which their questions are featured.
Submissions should include the following:
1. Two to three Board review-style questions with four to five answer choices.
2. Answers should be complete and include detailed explanations with references from pertinent peer-reviewed journals, textbooks, or reference manuals.
***Please direct all inquiries and submissions to Dr. Fayad; fayad@ufl.edu.**

# Author Information for *Residents' Journal* Submissions

**The Residents' Journal accepts manuscripts authored by medical students, resident physicians, and fellows; manuscripts authored by members of faculty cannot be accepted.**

1. **Commentary:** Generally includes descriptions of recent events, opinion pieces, or narratives. Limited to 500 words and five references.

2. **Treatment in Psychiatry:** This article type begins with a brief, common clinical vignette and involves a description of the evaluation and management of a clinical scenario that house officers frequently encounter. This article type should also include 2-4 multiple choice questions based on the article's content. Limited to 1,500 words, 15 references, and one figure.

3. **Clinical Case Conference:** A presentation and discussion of an unusual clinical event. Limited to 1,250 words, 10 references, and one figure.

4. **Original Research:** Reports of novel observations and research. Limited to 1,250 words, 10 references, and two figures.

5. **Review Article:** A clinically relevant review focused on educating the resident physician. Limited to 1,500 words, 20 references, and one figure.

6. **Letters to the Editor:** Limited to 250 words (including 3 references) and three authors. Comments on articles published in the Residents' Journal will be considered for publication if received within 1 month of publication of the original article.

7. **Book Review:** Limited to 500 words and 3 references.

Abstracts: Articles should not include an abstract.

# Upcoming Issue Themes

*Please note that we will consider articles outside of the theme.*

**June 2011**
Section Theme: No specific theme
Guest Section Editor: Deepak Prabhakar, M.D.;
dprabhakar@med.wayne.edu

**July 2011**
Section Theme: Suicide
Guest Section Editor: Karthik Sivashanker, M.D.
sivashanker@gmail.com

**August 2011**
Section Theme: Clinical Trials
(Send e-mail to Joseph Cerimele, M.D.;
joseph.cerimele@mssm.edu)

**September 2011**
Section Theme: Addiction
Guest Section Editor: Jonathan Avery, M.D.
joa9070@nyp.org

*We invite residents who are interested in participating as Guest Section Editors to e-mail Dr. Cerimele at joseph.cerimele@mssm.edu. If you are interested in contributing a manuscript on any of the themes outlined, please contact the Section Editor for the specified month.*