

or amnesia, fugue, dissociative identity disorder, or depersonalization). Rather, they seem to best fit the definitions of delirium, psychosis, and delusion. In addition, our data, albeit preliminary, do not show a significant difference in scores on the Dissociative Experiences Scale between patients with and without psychotic symptoms.

With regard to DSM-IV categories, the patients in our study did not meet diagnostic criteria for schizophrenia, and only a minority met criteria for comorbid schizoaffective disorder or major depression with psychotic features. We believe that the diagnosis that best fits these symptoms in the majority of the subjects is psychosis not otherwise specified. Perhaps a subtype of PTSD with psychotic features, similar to what exists for major depression, should be considered for future DSM editions.

We share the concerns regarding inappropriate use of neuroleptic medications for PTSD patients. However, the benefits of conventional pharmacologic treatments for the severely affected subpopulation represented in our paper appear to be limited. Given the improved safety profile of atypical neuroleptics over traditional neuroleptics and a recent positive report of open label treatment with an atypical antipsychotic,³ we feel that further evaluation of the use of atypical antipsychotics in severe and chronic PTSD is warranted.

REFERENCES

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association, 1994.
2. David D, Kutcher GS, Jackson EJ, et al. Psychotic symptoms in combat-related posttraumatic stress disorder. *J Clin Psychiatry* 1999;60:29-32.
3. Hamner M, Ullmer H. Risperidone for positive symptoms of psychosis in PTSD: a preliminary open trial [poster]. Presented at the 38th Annual Meeting of the New Clinical Drug Evaluation Unit, June 10-11, 1998; Boca Raton, Fla.

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Patient's Coping Skills and Environmental Stress Important to Understanding Recurrence During Antidepressant Maintenance

Sir: Recently, Byrne and Rothschild¹ reported on possible mechanisms for loss of antidepressant efficacy during maintenance therapy. Although I would agree with the theoretical mechanisms cited by the authors, there is a glaring oversight in their thinking about this important issue: specifically, the role of new psychosocial stresses encountered by the patient during the maintenance period, the cumulative effect of ongoing chronic psychosocial stress in the patient's life, and ongoing coping deficits. Psychosocial stress that the patient cannot manage could overwhelm all or part of a previously positive biological antidepressant response. Byrne and Rothschild's thinking makes several problematic assumptions: (1) all patients have the same level of psychosocial stress in their lives; (2) all patients have the same level of skill at handling stresses when they encounter them; (3) the level of psychosocial stress remains a constant for patients throughout the acute, continuation, and maintenance phases of antidepressant treatment; and/or (4) life events and ability to cope with them are trivial in relation to the course of affective disorders. These assumptions lead to the po-

sition that the effect of the medication is the only important independent variable to be considered during the maintenance period.

The "biological disease" of depression cannot be separated from the environmental context of the patient or the coping skills of the patient. For example, people with personality disorders or with detrimental personality traits are both less likely to cope well with certain environmental stresses when they occur and more likely to create frequent or painful psychosocial stresses in their lives. The ongoing grinding stress of poverty or abusive relationships is depressogenic, presumably especially in people with a biological diathesis for affective disorder. A divorce, job loss, poor job evaluation, etc., during the maintenance period may precipitate the relapse or recurrence of a full affective syndrome in susceptible individuals. Possibilities of important factors other than biological medication effect are numerous.

I am not arguing the reverse extreme point of view, that only psychological and environmental factors cause depression or affective disorders. However, psychiatric literature frequently ignores obvious and salient psychosocial factors impacting the disorders it studies. The quality of our science suffers because of our biological tunnel vision.

REFERENCE

1. Byrne SE, Rothschild AJ. Loss of antidepressant efficacy during maintenance therapy: possible mechanisms and treatments. *J Clin Psychiatry* 1998;59:279-288.

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New-Onset Diabetes Mellitus Associated With the Initiation of Quetiapine Treatment

Sir: Quetiapine is a novel antipsychotic that antagonizes both serotonergic (5-HT₁ and 5-HT₂) and dopaminergic (D₁ and D₂) receptors. The manufacturer describes hypoglycemia, hyperglycemia, and diabetes mellitus as infrequent side effects (0.1%-1.0%).¹ The following is a case report of possible quetiapine-induced onset of diabetes mellitus.

Case report. Mr. A, a 42-year-old white man with a history of bipolar disorder, type I, was seen by the psychiatry consultation service after admission for new-onset diabetes mellitus. Mr. A had no prior history of glucose intolerance or hyperglycemia, and 4 months before his admission to the hospital, the results of random blood glucose tests were 126 and 107 mg/dL. He did have hypertriglyceridemia, which had been noted for more than a year prior to this admission. His family history was negative for diabetes. His bipolar disorder had been managed with a combination of lithium carbonate, 900 mg daily; gabapentin, 2000 mg daily; clonazepam, 1 mg at night; and venlafaxine, 37.5 mg daily. Quetiapine had been added to his regimen 1 month before his admission to the hospital and titrated to 200 mg at night.

Mr. A was admitted to the medicine ward after several days of nausea, vomiting, polyuria, and confusion. At the time of admission, he was noted to have a blood glucose level of 607 mg/dL and was started on intravenous fluids and a sliding scale insulin regimen. He was eventually discharged from the hospital on a regimen of 17 units regular and 33 units NPH insulin in the morning and 6 units regular and 10 units NPH insulin in the

evening. He was also started on gendtrozot treatment for hypertriglyceridemia at the time of discharge.

After discharge, he was seen in follow-up in the psychiatry and medicine clinics. His quetiapine dosage was reduced and then discontinued over the course of 9 days. Since the discontinuation of quetiapine, Mr. A's insulin requirements have increased markedly. His insulin was eventually discontinued 2 months after his admission.

Clearly, there is no absolute proof in this case report that his patient's apparently transient episode of mania was caused by the quetiapine. However, we are reasonably sure that other explanations were ruled out. Through their review of case reports of clozapine-associated hyperglycemia and diabetic mellitus—a 537-DI-INS search does not reveal any case reports of this association with quetiapine. There have been no reports of any adverse interactions between quetiapine and the patient's other medications. Clinicians should be aware of this possible adverse effect and should use caution when prescribing quetiapine to patients with known glucose intolerance or frank diabetes mellitus.

REFERENCES

1. Serenquel/quetiapine. Physicians Desk Reference 53rd ed. Montvale, NJ: Medical Economics; 1999: 423-445.
2. Kaurava, Domowany PM, Lane R, et al. Severe hypoglycemia associated with high doses of clozapine [letter]. *Am J Psychiatry* 1993;151:1415.
3. Fava MV, Papp M, Li F, et al. Severe hypoglycemia associated with clozapine treatment [letter]. *Am J Psychiatry* 1994;151:1520-1521.
4. Popli AP, Komicki PE, Jagan CJ, et al. Clozapine and associated diabetes mellitus. *J Clin Psychiatry* 1997;58:108-111.

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Valproate-Induced Hyperammonemia in the Psychiatric Setting: 2 Cases

Sir: Although several case reports have described valproate-induced reversible elevation of serum ammonia levels, this problem may not be recognized quickly owing to lack of sufficient awareness. A high level of suspicion will enable the busy clinician to identify and intervene promptly in this clinical setting. This is particularly relevant in today's clinical psychiatric practice owing to the current widespread use of valproate in the acute and maintenance treatment of psychiatric disorders. Also, hyperammonemia manifests as mental status change, which is likely to be attributed to a worsening of psychosis or mania. Furthermore, the typical absence of abnormalities in routine liver function testing makes the clinician who relies on these tests likely to overlook this interesting and relatively infrequent adverse effect.

Case 1. Ms. A, a 53-year-old single white woman with a long-standing diagnosis of bipolar disorder (type I) and alcohol dependence, was admitted to the inpatient psychiatric and substance abuse treatment unit for treatment of mania with psychotic features, detoxification, and early phase rehabilitation of alcoholism. She had a history of possible emergency ser-

vice by the police after she was found by staff of a local hotel to be aggressive, argumentative, and demonstrating a delusional belief that she was the personal assistant to a famous songwriter who was staying at the same hotel. Other symptoms included decreased sleep, increased goal directed behavior, and intermittent auditory hallucinations of grandiose nature. She had been drinking 6 to 10 beers per day for several weeks prior to presentation to our facility. Upon admission, Ms. A had taken no psychotropic medications and had no psychiatric follow-up.

Results of laboratory studies upon admission were within normal limits, including complete blood count, creatinine, aminotransferase, and chloride levels. Total bilirubin, gamma-glutamyl transaminase, and albumin levels were also normal. Urinary alcohol detoxification in 3 days and no previous treatment with divalproex sodium, 500 mg p.o. t.i.d., for 4 days (total daily periodol, 2 mg p.o. b.i.d.), and benzotropine, 2 mg p.o. t.i.d., were also started to treat the acute psychotic symptoms. Following 10 days, her manic symptoms began to decrease, and her serum valproic acid level was 74 µg/ml. Several days later, the dose of divalproex was increased by 250 mg/day to a total daily dose of 1,750 mg, and over the next 5 days, mania further improved and psychotic features began to resolve.

However, over the next few days, Ms. A began to complain of feeling very lethargic, wandered into other patients' rooms, had intermittently illogical speech, and could even be found napping in the day room. Valproic acid level was 107 µg/ml, and all liver function indices were well within normal limits. A serum ammonia level was obtained and found to be 79 µmol/l (normal range = 11-35 µmol/l). The dose of valproate was decreased by over one half to 250 mg p.o. t.i.d., and lithium was started at 300 mg p.o. b.i.d. in an effort to prevent recurrence of mania. Serum ammonia level dropped to 54 µmol/l 7 days later, and within 3 days of the reduction in dose of valproate, seasonum returned to normal with no evidence of mania. One week after the dose of valproate was decreased, serum ammonia level was 30 µmol/l, and valproic acid level was 43 µg/ml with no further mental status change. Ms. A was discharged a few days later.

Case 2. Mr. B, a 23-year-old single white man with a diagnosis of schizoaffective disorder and mania, was admitted to the inpatient psychiatric and substance abuse treatment unit for treatment of a progressively worsening bipolar thought disorder and mania. He also had a long history of alcohol dependence and crack cocaine abuse. He had drunk up to a 6 pack of beer per day for the last several years and smoked crack cocaine intermittently. His last use of alcohol and cocaine was over 7 weeks before admission, and detoxification was not necessary. He was started on treatment with olanzapine, 10 mg p.o. q.d., and divalproex, 500 mg p.o. t.i.d. Initial laboratory values, including liver function test results, were all within normal limits. Valproic acid levels during the first 10 days of hospitalization were therapeutic in the 70- to 80-µg/ml range.

By the end of the second week of hospitalization, Mr. B appeared to be lethargic during the day and more bizarre in his speech, which was initially attributed to exacerbation of psychosis. Serum ammonia level was 54 µmol/l, and liver function values were normal. Over the next week, he became more confused, and a repeat serum ammonia level was 191 µmol/l. Liver function and metabolic profiles were normal. Valproate was discontinued promptly, and Mr. B was given lorazepam for several days. Lithium, 300 mg p.o. b.i.d., was started for prophylaxis of mania. Within the next 2 days, Mr. B's confusion fully cleared, and his ammonia level decreased to 46 µmol/l. There was no emergence of mania. Mr. B returned to treatment