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Inside

In This Issue

This issue of *The Residents' Journal* includes a section theme on eating disorders. First, Mariana Markella, M.D., discusses a multidisciplinary inpatient treatment approach for patients suffering with anorexia nervosa. Next, Michael Rosen, M.D., provides clinical information regarding the use of atypical antipsychotic drugs in the treatment of eating disorders.

Editorial

Rating Scales and *The Residents' Journal*

Joseph M. Cerimele, M.D.

Rating scales are frequently used in research studies but can also be used in day-to-day clinical practice to measure and track symptoms, disorders, quality of life, and other patient characteristics. Duffy et al. (1) described a mechanism for implementing measurement-based care in different clinical settings throughout the United States. The authors trained clinic staff members to use the Patient Health Questionnaire–9, a depression rating scale commonly used in primary care settings, to screen for and track the progression of depression in their patients. Overall, the authors found that clinicians in resource-limited settings can use standardized rating scales in their daily practices, that treatment decisions were often influenced by the data collected from the standardized tool, and that most practices enrolled in the study continued to use the scale after the study ended. Although this study did not assess patient outcomes (the authors reported that this is their next step), these encouraging findings suggest that clinic-wide use of scales can be beneficial.

In 2009, Nasrallah (2) sought to answer questions about psychiatrists' use of rating scales. He surveyed readers of *Current Psychiatry* about their use of four popular rating scales (Positive and Negative Syndrome Scale, Young Mania Rating Scale, Hamilton Depression Rating Scale, and Montgomery-Åsberg Depression Rating Scale) and found that most respondents did not use any of these scales in their clinical practices. He reported that "lack of time was the most common reason respondents cited for not using these tools." In this article, Dr. Nasrallah did not report whether he surveyed trainees.

In their article published in the October 2010 issue of *The Residents' Journal,* Lau and Farahani presented a case and reviewed the literature on the use of rating scales in the diagnosis and management of delirium (3). The authors argued for residents to use rating scales when assessing patients for delirium and offered instructions on how to use each scale. According to some readers, this case-based article was clinically useful. Recently, I have talked with resident colleagues (at several training programs) who have used rating scales to assess patients on the wards and in the clinics. They reported commonly using scales to assess dementia, anxiety, depression, and movement disorders. Based on residents' reports, the interest in learning about rating scales and measurement-based practice is high.

We would like to encourage this interest at *The Residents' Journal* and publish articles of all types (clinical case conferences, treatment in psychiatry articles, review articles, original reports) describing the use of rating scales in clinical scenarios commonly encountered by the resident physician. For example, articles might address the differences among scales used in cognitive assessments, the use of rating scales in an emergency setting, and comparisons of self-report and physician-rated scales for common disorders. These articles will be peer reviewed and considered for publication in an upcoming issue. Articles must be submitted by April 30, 2011.

References

1. Duffy FF, Chung H, Trivedi M, Rae DS, Reiger DA, Katzelnick DJ: Systematic use of patient-related depression severity monitoring: is it helpful and feasible in clinical psychiatry? Psychiatr Serv 2008; 59:1148–1154
2. Nasrallah HA: Long overdue: measurement-based psychiatric practice. Curr Psychiatry 2009; 814–816
3. Lau A, Farahani A: The use of rating scales in the diagnosis and management of delirium. Am J Psychiatry Res J 2010; 5:5–6

Multidisciplinary Inpatient Treatment Approach for Anorexia Nervosa

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Anorexia nervosa is a life threatening disorder that carries a very high mortality rate, with approximately 6% of those diagnosed eventually dying as a result of medical complications or suicide (1). The seriousness of physical and mental manifestations of anorexia nervosa often requires hospitalization to prevent further deterioration and effectively begin recovery. One of the advantages of the lengthy inpatient treatment for anorexia nervosa is that it provides a safe environment where food intake and weight can be monitored while psychological concerns are explored and addressed to assist with relapse prevention after discharge. Treatment of the disorder requires a team approach. Multidisciplinary care is provided by inpatient treatment teams consisting of psychiatrists, internists, psychologists, social workers, nurses, nutritionists, and recreational and occupational therapists.

Inpatient Treatment Indications, Goals, Initiation, and Progress

Indications for hospitalization of anorexia nervosa patients include poor motivation and insight (inability to recognize the seriousness of severe weight loss); lack of cooperation with outpatient treatment; inability to eat independently or need for nasogastric feeding; marked suicidal ideation and suicidal plan; severe coexisting psychiatric disease; antitherapeutic family environment; and physiological abnormalities such as bradycardia, rapid weight loss within 1 week or a weight <75% of expected weight, hypotension, symptomatic hypoglycemia, hypokalemia, hypothermia, and dehydration (2). Inpatient treatment for anorexia nervosa focuses on normalizing the patient's weight as well as disturbed eating patterns. All patients on inpatient units receive 24-hour treatment, management, and containment of their ingrained behavioral abnormalities. Treatment begins at the highest level of monitoring, with greatest control of the patient's eating and of the total environment. At each stage of recovery, the appropriate weight gain goal is determined by the treatment team. Being able to reach this goal and to demonstrate normalizing eating patterns allow progression to the next level with less control over eating and more privileges.

Physical Health Monitoring

Careful assessment of patients' physical health, including weight, vital signs, and physical examination, is done on a daily basis. Patients are closely monitored for signs of refeeding syndrome, a problem of electrolyte and fluid shifts that occurs in significantly malnourished patients during the early phase of nutritional replenishment and can lead to respiratory insufficiency, cardiac failure, hypotension, arrhythmias, delirium, coma, or even death if untreated (3). Refeeding syndrome, arrhythmias, and gastrointestinal complications resulting from purging behaviors as well as electrolyte imbalances are all common manifestations in severe anorexia nervosa, requiring close monitoring and often medical intervention.

Nutrition Therapy

Nutrition therapy is a crucial component of treatment (4). All meals are planned according to an individual patient's physical needs, and the patient is monitored by trained staff members who demonstrate empathy and understanding while setting firm limits about what must be consumed in a set period of time. This ancillary staff later reports to the rest of the team on the percentage of food consumed and rituals related to food ingestion, such as cutting food into small pieces, separating some of the ingredients, mixing up ingredients, or leaving meal items out. Distractions such as talking about unrelated issues during meals are encouraged, while comments about food, calories, dieting, and focus on eating disordered thoughts are discouraged. Meals are usually followed by a meal process group to allow discussion about patients' experiences related to the meal. This not only allows the diffusion of high anxiety these patients report after meals and prevention of purging and other self-harming behaviors but also provides a closer look at group dynamics among those eating together as patients at different stages of their recovery. Following meals and meal process group meetings, patients are asked to remain in the lounge for another hour to allow further supervision. As part of their recovery, patients are expected to learn about healthier food choices, balanced diet, and their nutritional needs. This aspect of treatment is usually carried out by a nutritionist who facilitates this process through a variety of activities, such as meal planning and food shopping groups, cooking and baking groups, and nutrition groups, which allow the practice of healthy eating behaviors.

Psychotherapy Modalities

Hospitalization on units designed to treat eating disorders provides an intensive program that includes a variety of psychotherapeutic group and individual interventions that aim to address distorted cognitions and behaviors related to eating and weight control. Cognitive and dialectical behavior therapies are some of the more commonly implemented psychotherapeutic interventions on eating disorders wards. Cognitive-behavioral therapy (CBT) for anorexia nervosa focuses on the cognitive and behavioral features associated with the maintenance of eating pathology and uses a schema-based approach to address a range of

continued on page 4

continued from page 3

issues related to self-esteem, self-schema, and interpersonal functioning (5, 6). In the dialectical behavior therapy approach, eating disordered behaviors are construed as maladaptive coping skills, and individuals are taught practical, hands-on techniques in the areas of mindfulness, emotion regulation, distress tolerance, and interpersonal effectiveness, with the goal being to decrease self-destructive, high-risk behaviors (7). Other less common groups found on some inpatient eating disorders wards are those focusing on stress and coping, interpersonal effectiveness, leisure education, and career exploration. Family therapy led by a psychologist focuses on assisting the family to work together in overcoming the eating disorder, examines the family dynamics that may contribute to the disorder or interfere with recovery, and provides useful tools to be of better support to a family member struggling with recovery while hospitalized as well as after discharge. Individual therapy focuses on exploring how and why the eating disorder developed and what perpetuates the disordered behavior. Patients are taught to rectify faulty thinking, get in touch with strong emotions, and obtain new coping skills.

Conclusions

Participation in such wide range of therapeutic modalities, led by different professionals, allows for faster and more comprehensive assesment of psychopathology severity, implementation of effective interventions, and eventually formulation of safer discharge planning. Generally, it is advisable that patients be >90% of their normal weight and have demonstrated improved functional behavior, with significant decrease of their core eating disorder symptoms. Treatment of anorexia nervosa does not end after discharge. To improve the long-term outcomes and decrease the well-known high relapse and readmission rates of this chronic illness, treatment continuation in outpatient care is essential after discharge (8).

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References

1. Herzog DB, Greenwood DN, Dorer DJ, Flores AT, Ekeblad ER, Richards A, Blais MA, Keller MB: Mortality in eating disorders: a descriptive study. Int J Eat Disord 2000; 28:20–26
2. Yager J, Andersen AE: Clinical practice: anorexia nervosa. N Engl J Med 2005; 353:1481–1488
3. Mehler PS, Winkelman AB, Andersen DM, Gaudiani JL: Nutritional rehabilitation: practical guidelines for refeeding the anorectic patient. J Nutr Metab (Epub ahead of print February 7, 2010)
4. Reiter CS, Graves L: Nutrition therapy for eating disorders. Nutr Clin Pract 2010; 25:122–136
5. Pike KM, Walsh BT, Vitousek K, Wilson GT, Bauer J: Cognitive behavior therapy in the posthospitalization treatment of anorexia nervosa. Am J Psychiatry 2003; 160:2046–2049
6. Kleifield EI, Wagner S, Halmi KA: Cognitive-behavioral treatment of anorexia nervosa. Psychiatr Clin North Am 1996; 19:715–737
7. McCabe EB, Marcus MD: Is dialectical behavior therapy useful in the management of anorexia nervosa? Eat Disord 2002; 10:335–337
8. Carter JC, Blackmore E, Sutandar-Pinnock K, Woodside DB: Relapse in anorexia nervosa: a survival analysis. Psychol Med 2004; 34:671–679

Atypical Antipsychotics for Eating Disorders

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There is an ongoing debate as to whether eating disorders, anorexia nervosa in particular, are in fact at least "pseudo-psychotic" disorders. Many patients with eating disorders have body dysmorphia, a belief that they are fat or at least that portions of their bodies are fat. What these patients experience is in essence a form of isolated, visual hallucination. They see themselves very differently than how others see them. Additionally, there may be delusional belief systems around food (e.g., fear that a slice of pizza will make one gain 5 pounds). Moreover, obsessive and compulsive signs and symptoms may be present, including uncontrolled drives for exercise, repeatedly stepping on a scale numerous times a day, and meticulously weighing and measuring one's food. Atypical antipsychotics may be helpful for these symptoms.

Clinical Trials

Evidence for the use of atypical antipsychotics in anorexia nervosa remains elusive. In fact, a recent review article published in *European Eating Disorders Review* (1) found that in a search of the literature between 1985 to 2009, there were only four randomized controlled trials, five open-label trials, and 26 case reports examining the use of atypical antipsychotics in anorexia nervosa. A recent study sponsored by the National Institute of Mental Health comparing 12 anorexia nervosa patients receiving olanzapine treatment and 10 anorexia nervosa patients receiving aripiprazole treatment showed that after 12 weeks of treatment only five individuals completed the study, 11 withdrew, and four were lost to follow-up assessment (2). Two patients were admitted to the hospital. However, it is difficult to draw conclusions from a study with such few patients.

The largest randomized controlled trial on antipsychotics in anorexia nervosa to date, conducted by Bissada et al. (3), examined 34 patients in a hospital day program for eating disorders, 16 of whom received olanzapine treatment, with a mean dose of 6.61 mg, and 18 received placebo. Olanzapine caused greater weight gain, but there was no statistically significant benefit over placebo in reducing psychopathology ratings on standard eating disorder questionnaires, such as the Eating Disorders Inventory–2. There were no differences in depressive or anxiety symptoms. However, there was a decrease in obsessive scores. After 10 weeks of treatment, the mean body mass index increased from 15.6 at baseline to 19.6 in the placebo group and to 20.3 in the olanzapine group.

Another randomized controlled trial of 30 patients with anorexia nervosa found similar effects on weight, along with a decrease in depression scores (4). On the contrary, a third trial of 15 patients comparing olanzapine to chlorpromazine found no increase in body mass index in the olanzapine group after 6 weeks of treatment, but there was an observed decrease in anorexia ruminations (5). Furthermore, results from five open-label studies of olanzapine and quetiapine (each with fewer than 20 patients) were mixed (6-10).

Benefit may not be completely related to weight gain or antipsychotic effects of dopamine blockade. Some experts believe that atypical antipsychotics can act as anxiolytics, via $5H_2$ receptor blockade, and decrease these anxiety symptoms (11). Patients with anorexia nervosa often have depressed affect. In addition to reduced serotonin, it is believed that there is also altered dopamine function in these patients, which can effect numerous circuits and cognition. Further, weight loss exacerbates rigidity, compulsions, overvalued ideas, and anxiety (12).

Many of the clinical trials have identified a significant increase in weight/body mass index with antipsychotic treatment. There is evidence that with weight gain in general, eating disorder symptoms lessen, perhaps as a result of replenishment of neurotransmitters (carbohydrates increase brain levels of serotonin). There is also evidence of revived dopamine receptor binding in regions that modulate responses to reward stimuli.

However, weight gain alone is not always associated with improved psychological symptoms, including reduced body dysmorphia and reduced anxiety around food. The starved brain promotes anorexia behaviors, and for many patients, refeeding allows for more normal metabolic brain activity. However, even with weight gain to a body mass index >20, obsessions and anxieties may still be present to a significant degree in some individuals. The psychopathology may even increase, perhaps because of the rate of increased weight, or perhaps because medication-induced weight gain is "involuntary" weight gain (i.e., the patient did not have the internal drive to gain weight, as in the case of the athlete who has been prohibited from competing until weight regain is achieved). In these patients, there can be a subsequent development of depression in response to the weight gain and a feeling of helplessness and being out of control.

Future Directions

It may be that the resolution of eating disorder symptoms occurs more often in younger patients, when chronicity has not had a chance to set in. However, data are lacking to support this speculation. And, unfortunately, there is still much debate regarding dosing and weight targets of treatment. There are more double-blind randomized controlled trials underway examining, again, weight gain and diminished eating disorder symptoms.

Fortunately, atypical antipsychotics have been shown to be overall safe in the eating disorder population. However, the picture may still be too muddy to make a firm decision. For now, each physician

continued on page 6

continued from page 5

should decide, based on the patient's history and examination, whether an atypical antipsychotic is indicated for the treatment of anorexia nervosa.

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References

1. McKnight RF, Park RJ: Atypical antipsychotics and anorexia nervosa. Eur Eat Disord Rev 2010; 18:10–21
2. National Institute of Mental Health: http://clinicaltrials.gov/ct2/show/results/NCT00685334?term=anorexia+and+olanzapine+and+abilify&rank=1
3. Bissada H, Tasca G, Barber AM, Bradwejn J: Olanzapine in the treatment of low body weight and obsessive thinking in women with anorexia nervosa: a randomized, double-blind, placebo-controlled trial. Am J Psychiatry 2008; 165:1281–1288
4. Brambilla F, Garcia CS, Fassino S, Daga GA, Favaro A, Santonastaso P, Ramaciotti C, Bondi E, Mellado C, Borriello R, Monteleone P: Olanzapine therapy in anorexia nervosa: psychobiological effects. Int Clin Psychopharmacol 2007; 22:197-204
5. Mondraty N, Birmingham CL, Touyz S, Sundakov V, Chapman L, Beumont P: Randomized controlled trial of olanzapine in the treatment of cognitions in anorexia nervosa. Australas J Psychiatry, 2005;13:72-75
6. Barbarich NC, McConaha CW, Gaskill J, La Via M, Frank GK, Achenbach S, Plotnicov KH, Kaye WH: An open trial of olanzapine in anorexia nervosa. J Clin Psychiatry 2004; 65:1480-1482
7. Bosanac P, Norman T, Burrows G, Beumont P: Serotonergic and dopaminergic systems in anorexia nervosa: a role for atypical antipsychotics? Austral N Z J Psychiatry 2005; 39:146-153
8. Powers PS, Santana CA, Bannon YS: Olanzapine in the treatment of anorexia nervosa: an open label trial. Int J Eat Disord 2002; 32:146-1
9. Powers PS, Bannon Y, Eubanks R, McCormick T: Quetiapine in anorexia nervosa patients: an open label outpatient pilot study. Int J Eat Disord 2007; 40:21-26
10. Malina A, Gaskill J, McConaha C, Frank GK, LaVia M, Scholar L, Kaye WH: Olanzapine treatment of anorexia nervosa: a retrospective study. Int J Eat Disord 2003; 33:234-237
11. La Via MC, Gray N, Kaye WH: Case reports of olanzapine treatment of anorexia nervosa: Int J Eat Disord 2000; 27:363–366
12. Kaye WH, Fudge J, Paulus M: New insights into symptoms and neurocircuit function of anorexia nervosa. Nat Rev Neurosci 2009; 10:573–584

Case Report

A Case of Olanzapine-Induced Dysphagia

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Case

"Mr. S" was a 76-year-old male veteran under legal guardianship. He had been diagnosed with schizoaffective disorder, microvascular cerebral infarctions, renal insufficiency, chronic obstructive pulmonary disease, and benign prostatic hypertrophy posttransurethral resection of the prostate. He had 18 psychiatric hospitalizations since 1995 and numerous psychotropic medication trials with limited response. The patient resided at a skilled nursing facility and was psychiatrically stabilized with olanzapine (30 mg daily) and divalproex (2,000 mg twice daily).

Nine months prior to his presentation, Mr. S was diagnosed with mild-to-moderate pharyngeal phase dysphagia of unknown etiology on modified barium swallow. He returned to the Veterans Affairs facility for repeat modified barium swallow, which showed significant interval decline of swallow function, with pooling of residue and evidence of multiple aspirations. He was admitted to the internal medicine service for further evaluation and management. Psychiatry was consulted on whether olanzapine could account for the worsening dysphagia. The patient had been receiving treatment with various doses of olanzapine for 10 years, and during this course exhibited parkinsonism and oral-buccal dyskinesia. He also had a history of rapid psychiatric decompensation in the setting of medication changes. On examination, he demonstrated upper extremity rigidity and tremors. He expressed a desire to continue eating "regular food." Internal medicine presented the patient with the option of percutaneous endoscopic gastrostomy tube placement for feeding if his dysphagia proved to be irreversible. He refused this intervention.

Psychiatry conceptualized the dysphagia as an antipsychotic-induced extrapyramidal symptom and recommended interventions prioritizing the patient's mental stability and quality of life concerns. Continuation of olanzapine and postponement of percutaneous endoscopic gastrostomy placement were advocated, while benztropine (0.5 mg twice daily) was introduced to manage the dysphagia. After 4 days, Mr. S had improved swallow function on repeat modified barium swallow and advanced to a puree diet. However, he developed urinary retention, attributed to the anticholinergic effects of benztropine, which resulted in urinary tract infection and urosepsis requiring treatment with intravenous antibiotics. Benztropine was discontinued while internal medicine and psychiatry reassessed the treatment plan.

Given the patient's poor prognosis, palliative care was consulted, with the goal of maximizing comfort and quality of life. With the guardian in agreement, olanzapine was continued and benztropine reinitiated. A Foley catheter was inserted, and a dosage of tamsulosin was increased to manage urinary retention. Medically stabilized, Mr. S advanced to a puree diet and returned to his nursing care facility under hospice care.

Discussion

Dysphagia in psychiatric patients increases risk for aspiration, asphyxia, pneumonia, and malnutrition if unrecognized and untreated. Of five common types of dysphagia in this population, bradykinetic and dyskinetic dysphagia are associated with neuroleptic antipsychotics (1). The former is associated with other extrapyramidal symptoms and resembles dysphagia in Parkinson's disease. The latter is related to tardive dyskinesia and is a consequence of involuntary oral-buccal movements. In our patient, cerebrovascular disease and chronic obstructive pulmonary disease could have also contributed to dysphagia.

A PubMed search using the term "neuroleptic induced dysphagia" yielded case reports primarily implicating typical antipsychotics (1). Atypical antipsychotics in general are lower risk for inducing extrapyramidal symptoms and tardive dyskinesia (2) because of higher 5-HT_{2A} receptor blocking activity and lower affinity for dopamine D_2 receptors (3). Case reports of dysphagia induced by risperidone and clozapine exist (1), although no English-language account of olanzapine-related dysphagia resulted from our literature search. Dose reduction and substitution of the offending agent, or addition of agents to treat extrapyramidal symptoms, improve neuroleptic-induced dysphagia symptoms within days to weeks (4). Recognition and treatment of neuroleptic-induced dysphagia could reverse the course of symptoms while preventing unnecessary interventions and unwanted medical consequences.

For our patient, there were no interventions that demonstrated clear advantage, since all had associated risks. Percutaneous endoscopic gastrostomy placement would have increased the risk of medical complications. Reducing his olanzapine dose or switching agents would have increased the risk of psychiatric decompensation. Treatment with benztropine improved dysphagia but caused urinary retention that led to urosepsis. Withholding intervention would address neither medical or quality of life concerns.

Given that our patient had no advanced directive or reliable account of his wishes prior to becoming incompetent, decision makers appealed to the best-interests principle (5), which dictates a careful weighing of available options

continued on page 8

continued from page 7

guided by patient-centered quality of life judgments beyond purely medical considerations. Priority was placed on subjective concerns—eating regular food and maintaining comfort. The resultant plan, although imperfect, was the most respectful and protective of the patient's own priorities at the end of his life.

Drs. McCune and Yao are third-year residents in the Department of Psychiatry at Oregon Health and Science University, Portland, Ore. Dr. Yao is a 2010–2012 APA Public Psychiatry Fellow, funded by the Bristol-Myers Squibb Foundation.

References

1. Dziewas R, Warnecke T, Schnabel M, Ritter M, Nabavi D, Schilling M, Ringelstein B, Reker T: Neuroleptic-induced dysphagia: case report and literature review. Dysphagia 2007; 22: 63–67
2. Leucht S, Corves C, Arbter D, Engel RR, Davis JM: Second-generation versus first-generation antipsychotic drugs for schizophrenia: a meta-analysis. Lancet 2009; 373:31–41
3. Nasrallah HA: Atypical antipsychotic-induced metabolic side effects: insights from receptor-binding profiles. Mol Psychiatry 2008; 13:27–35
4. Gonzales F: Extrapyramidal syndrome presenting as dysphagia: a case report. Am J Hosp Palliat Care 2008; 25:398–400
5. Edwards F: A philosophical discussion of end-of-life decision-making methods for incompetent patients. Int J Palliat Nurs 2002; 8:146–151

Commentary

The Mental Status Examination

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The Mental Status Examination is an essential tool that describes the examiner's observations of a patient's behaviors while the patient is in the psychiatrist's view, during, before, and after the interview (1, 2). It should also convey to other providers a clear snapshot of the patient at that moment in time. When communicating with nonmental health providers, psychiatric terminology is often meaningless. Psychiatry residents are taught to use mental status nomenclature early in their training, without first learning to describe what they observe of the patient. As a result, incorrect or meaningless information may be communicated, which may confuse the clinical picture. It may be beneficial to teach medical students and residents to describe their observations of patients in a straightforward manner and then teach them psychiatric terminology after they have competently developed their observational skills.

The two most common areas with which trainees have difficulty are the description of affect and thought process. When describing a patient's affect, terms such as "restricted," "constricted," "blunted," and "flat" are often used. These definitions are subjective in nature and are often on the same spectrum to describe a limited emotional response. If the purpose of the affect section of the Mental Status Examination is to describe a patient's externally observable emotional reaction (1, 3), it may be more beneficial to use the term "emotional responses" rather than "affect" and then describe the emotional response as follows: "patient's emotional response is limited as evidenced by consistent appearance of sadness during the interview." This is more descriptive than saying that the "patient's affect is constricted." Instead of stating that the "patient's affect is euthymic," the phrase "the patient laughs and smiles appropriately throughout the interview" is far more precise.

When describing a patient's thought processes, terms such as "tangential," "circumstantial," and "coherent, logical, goal directed" are commonly used. When a patient's thought processes are difficult to follow, it can become complicated to differentiate what is tangential from what is circumstantial. It may be better to initially describe a patient's thought processes as "organized" or "disorganized" and then describe the intricacies of the thought process. For example, "the patient's thought process is disorganized as evidenced by an inability to remain on topic and not being able to answer the questions in a straightforward manner." This paints a much clearer picture in the minds of other providers of what the interaction with the patient was like.

Although there are many different styles of describing the Mental Status Examination, it may be more beneficial for trainees to characterize their observations in simple terms prior to using psychiatric nomenclature. This method not only ensures that trainees learn to recognize various aspects of affect and thought process, but it ensures that they understand and can effectively communicate these observations. Along with history, the Mental Status Examination is an integral part of the process that allows the psychiatrist to arrive at a diagnosis and, subsequently, treatment decisions. It is therefore essential that the examiner be aware of the critical role the examination plays in this process.

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References

1. Vergare MJ, Binder RL, Cook IA, Galanter M, Lu FG: Practice Guidelines for the Psychiatric Evaluation of Adults: APA Psychiatric Guidelines, 2nd ed. Washington, DC, American Psychiatric Publishing, 2006, pp 23–25
2. Sadock JB, Sadock VA: Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry, 9th ed. Edited by Cancro R. Philadelphia, Lippincott Williams and Wilkins, 2003, p 238
3. Snyderman D, Rovner BW: Mental Status Examination in primary care: a review. Am Fam Physician 2009; 80:809–814

Treatment in Psychiatry

Anticipation of Serotonin Syndrome Resulting From Coadministration of Linezolid With a Selective Serotonin Reuptake Inhibitor

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Case

A 56-year-old man with a history of major depressive episode was referred for medical management of an infected total hip joint prosthesis, which was resistant to vancomycin. The patient's depressive symptoms were in full remission, and he had been successfully maintained on a regimen of 150 mg of sertraline daily in addition to 200 mg of trazodone. Infectious disease consultants recommended treatment of the infected prosthesis with linezolid. Given the monoamine oxidase inhibiting properties of linezolid, psychiatry was consulted for additional pharmacologic recommendations. How would you manage this case?

Discussion

Serotonin syndrome is a potentially life threatening condition seen most commonly with therapeutic use of serotonergic medications. Classically, it was described as a triad of autonomic hyperactivity and mental status and neuromuscular abnormalities (1). Common symptoms include anxiety, restlessness, disorientation, diaphoresis, tachycardia, hyperthermia, hypertension, vomiting, diarrhea, tremor, muscle rigidity, myoclonus, and hyperreflexia. Although it is difficult to quantify the incidence rate of serotonin syndrome, it is expected that it will increase in the future, reflecting the increasing use of serotonergic agents in clinical practice. Toxic surveillance systems identified 48,204 exposures to selective serotonin reuptake inhibitors (SSRIs) during the year 2004 that resulted in 103 deaths (2). It is concerning to note that greater than 85% of physicians are unaware of serotonin syndrome as a clinical diagnosis (3), which compounds the problem further with the increasing use of linezolid on medical and surgical floors. Recent case reports suggest that linezolid can precipitate serotonin syndrome because of its nonselective reversible inhibition of human monoamine oxidase (4).

Linezolid is the first drug from the novel oxazolidinone family of antimicrobials and was originally developed as an antidepressant for its reversible monoamine oxidase inhibitor (MAOI) properties (5). It is routinely used for treatment of methicillin-resistant staphylococcus aureus and vancomycin-resistant enterococci. Linezolid is superior to other medications such as daptomycin because it is 100% bioavailable orally, poorly bound to proteins, and penetrates well into most body compartments, including bone and alveoli (6). Daptomycin demonstrates poor oral bioavailability, rapidly binds to serum albumin, and has limited penetration of bone and alveoli. Moreover, the overall tissue distribution of linezolid is stable and is not adversely affected by sepsis, peripheral vascular disease, or hepatic or renal impairment.

Although serotonin syndrome was not reported for 52 patients receiving treatment with linezolid concurrently with SSRIs during phase III trials of linezolid, there are case reports of serotonin syndrome with concurrent treatment with various antidepressants, including venlafaxine, sertraline, fluoxetine, and citalopram (4). A retrospective chart review conducted at the Mayo Clinic found an incidence rate of serotonin toxicity of 3% in patients with concurrent use of an SSRI and linezolid (7).

Linezolid may also precipitate hypertensive crisis when used in combination with a dopaminergic or adrenergic medication such as bupropion (8). A placebo-controlled cross-over study in 12 healthy male volunteers measured pressor response of linezolid compared with that of moclobemide after intravenous tyramine administration and concluded that both MAOIs had significantly more pressor activity than placebo (9). Untreated hypertensive crisis can result in stroke or death, and hence prevention becomes paramount.

This clinical situation presents a unique challenge because clinicians have to monitor for serotonin syndrome and hypertensive crisis (with continued use) as well as discontinuation syndrome and relapse of depression (with antidepressant discontinuation). SSRI discontinuation syndrome presents within 1–3 days of discontinuing or reducing the dose of a serotonergic medication, and reinstitution of the discontinued drug can usually abate the symptoms. It is characterized by gastrointestinal and flu-like symptoms, anxiety, irritability, crying spells, sleep or sensory disturbance, and disequilibrium (10). Unlike serotonin syndrome, symptoms do not include neuromuscular or autonomic symptoms. On the other hand, hypertensive crisis usually presents with very high blood pressure (>180/120 mmHg), headache, anxiety, and shortness of breath. Unlike serotonin syndrome, patients do not manifest neuromuscular or gastrointestinal symptoms.

In many instances, the short-term risk-benefit analysis favors discontinuing SSRI treatment. However, one should tailor clinical management on an individual basis, since there are multiple variables that need to be factored in. Accurate psychiatric history is always a good place to

continued on page 11

continued from page 10

begin. Specific details such as number of depressive episodes, past high-risk behavior, response to current medication, drug compliance, and partial versus full remission will guide effective risk-benefit analysis. Having a family member participate as a part of treatment planning is beneficial when psychiatric follow-up assessment shifts from an inpatient to an outpatient setting. Important considerations for a complete risk-benefit analysis also include alternative antimicrobials, other medications (opiates can also interact to cause a serotonin syndrome), and time constraints.

The patient discussed in the present case vignette had a single depressive episode approximately 5 years prior to his presentation, which required a 1-month psychiatric hospitalization. He was initially treated with sertraline and stabilized at 150 mg daily. He responded very well to this medication, but insomnia continued to be a problem, and hence trazodone was added. The patient attained full remission with this pharmacologic regimen. Additional history revealed poor compliance with sertraline. However, he was compliant with trazadone treatment and no longer complained of insomnia. Since the patient's depressive symptoms were fully remitted and he had no prior high-risk behavior, it was decided that both antidepressants would be discontinued (over 2 days without cross coverage). Zolpidem was initiated at 10 mg nightly in an effort to ensure continued sleep normalization. Linezolid treatment at 600 mg every 12 hours for 6 weeks was initiated after an antidepressant washout period of 1 week. During this washout period, the patient was treated with daptomycin (450 mg daily). He was closely monitored, and no evidence of serotonin toxicity was noted.

Clinicians should be mindful of the potential drug-drug interactions between the commonly prescribed SSRIs and linezolid. A thoughtful risk-benefit analysis is warranted in every case because there are no standard recommendations. The grave nature of infection may command initiation of linezolid without the suggested 2-week wash-out period in some cases, and such patients would require close monitoring.

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References

1. Boyer EW, Shannon M: Current concepts: the serotonin syndrome. N Engl J Med 2005; 352:1112–1120
2. Watson WA, Litovitz TL, Rodgers GC Jr, Klein-Schwartz W, Reid N, Youniss J, Flanagan A, Wruk KM: 2004 annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 2005; 23:589–666
3. Mackay FJ, Dunn NR, Mann RD: Antidepressants and the serotonin syndrome in general practice. Br J Gen Pract 1999; 49:871–874
4. Caroline MP, Blair J: Linezolid: a review of its use in the management of serious gram-positive infections. Drugs 2001; 61:525–551
5. Moellering RC: Linezolid: the first oxazolidinone antimicrobial. Ann Intern Med 2003; 138:135–142
6. Chen LF, Drew RH, Hooper DC, Baron EL: Pharmacology of Antimicrobial Agents for Treatment of Methicillin-Resistant Staphylococcus Aureus and Vancomycin Resistant Enterococcus. www.uptodate.com
7. Taylor JJ, Wilson JW, Estes LL: Linezolid and serotonergic drug interactions: a retrospective survey. Clin Infect Dis 2006; 43:180–187
8. Marcucci C, Sandson NB, Dunlap JA: Linezolid-bupropion interaction as possible etiology of severe intermittent intraoperative hypertension? Anesthesiology 2004; 101: 1487–1488
9. Cantarini MV, Painter CJ, Gilmore EM, Bolger C, Watkins CL, Hughes AM: Effect of oral linezolid on the pressor response to intravenous tyramine. Br J Pharmacol 2004; 58:470–475
10. Schatzberg AF, Haddad P, Kaplan EM, Lejoyeux M, Rosenbaum JF, Young AH, Zajecka J: Serotonin reuptake inhibitor discontinuation syndrome: a hypothetical definition. J Clin Psychiatry 1997; 58(suppl 7):5–10

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 Mark Sylvester, M.D., (PGY-III), Department of Psychiatry, University of Florida, Gainesville, Fla.

Question #1.
Transcranial magnetic stimulation exerts an induced electrical current to which region of the brain?

A. Ventral tegmental area
B. Frontoparietal cortex
C. Dorsolateral prefronal cortex
D. Anterior cingulate
E. Left frontotemporal area

Question #2.
Which of the following is Food and Drug Administration approved for the treatment of major depressive disorder?

A. Transcranial magnetic stimulation
B. Flumazenil
C. Fluvoxamine
D. Dextroamphetamine
E. Methylphenidate

ANSWERS

Answers to January Questions. To view the January Test Your Knowledge questions, go to http://ajp.psychiatryonline.org/cgi/data/168/1/A26/DC2/1.

Question #1.
Answer: C. Citalopram
The patient is demonstrating symptoms consistent with premenstrual dysphoric disorder. Of the medications listed, only fluoxetine, paroxetine CR, and sertraline are Food and Drug Administration approved for the treatment of premenstrual dysphoric disorder.

Question #2
Answer: D. 600 mg/daily
The seizure threshold is noted to be lowered at 600 mg daily. In addition, physicians should be cautious in dosage increases in these patients and should avoid daily dosage increases of 100 mg, since this is also noted to lower seizure threshold.

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 1,000 words and 10 references.

3. **Clinical Case Conference:** A presentation and discussion of an unusual clinical event. Limited to 750 words and five references.

4. **Original Research:** Reports of novel observations and research. Limited to 1,000 words, 10 references, and two figures.

5. **Review Article:** A clinically relevant review focused on educating the resident physician. Limited to 1,000 words, 10 references, and one figure.

6. **Letters to the Editor:** Limited to 250 words (including 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.

Abstracts: Articles should not include an abstract.

References: Use reference format of *The American Journal of Psychiatry* (http://ajp.psychiatryonline.org/misc/Authors_Reviewers.dtl).

Upcoming Issue Themes

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

April 2011
Section Theme: Psychosomatic Medicine
Guest Section Editor: Amit Pradhan, M.D.;
dramitpradhan@hotmail.com

May 2011
Section Theme: Exercise and Psychiatric Disorders
Guest Section Editor: Corey Meyer, M.D.;
cmeyer@challiance.org

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

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.