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In This Issue

Psychiatry and Primary Care

Joseph M. Cerimele, M.D.



In this month's issue, we focus on psychiatry and primary care. Many psychiatric disorders are managed in the primary care setting. Thus, the integration of psychiatric care with primary care services is critical. An article on the patient-centered medical home and mental health home models discusses improving healthcare coordination among physicians and other clinicians, providing a team-based approach to care. Drs. Lee Robinson and Hanna Stevens, respectively, have contributed articles on psychiatric care in pediatric primary care. Dr. Erika Ruth discusses treating perinatal depression in obstetric/gynecological care, where some women also receive primary care services. Finally, in a Psychiatry Case Conference, Drs. Kendhari, Bains, and Campbell focus on adverse effects of psychotropic medication as well as the integration of psychiatry and internal medicine in recognizing and treating these side effects. We hope that these articles will encourage psychiatry residents to work with primary care physicians in delivering collaborative psychiatric and primary care.

The Patient-Centered Medical Home, the Mental Health Home, and the Psychiatrist's Role

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Several healthcare reform plans involve shifting the focus of healthcare delivery away from specialty care toward primary care services (1). For the past 12 years, fewer graduating medical students have selected careers in primary care, reducing the number of available primary care physicians to administer the restructured healthcare delivery system (2).

Bodenheimer et al. (3) reported that the decline in interest in primary care careers is secondary to 1) medical education favoring nonprimary care fields, 2) work-related stresses in primary care practices, and 3) the lower income primary care physicians earn relative to physicians in other medical specialties. Careers in primary care will likely remain unappealing if these problems continue. In 2007, several physician organizations proposed the patient-centered medical home as a way to reduce these difficulties by improving efficiency, evidence-based care, and availability of primary care clinicians (4).

What Is the Patient-Centered Medical Home?

The patient-centered medical home consists of the following four components: comprehensive primary care, patient-centered care, new-model practice, and payment reform (1). The main goals of the medical home model are to improve care coordination among physicians and other clinicians and to provide a team approach to patient-centered care. The team-based model of care places physicians at the head of interdisciplinary care teams comprised of dietitians, nurses, and other health professionals, allowing the patient to receive care from all team members. The medical home also

involves improved methods of patient referral, medical record keeping (e.g., electronic medical records), and innovative techniques of patient-clinician communication, such as e-mail, group appointments, and Web-based data entry sites.

Is There a Role for a Psychiatrist in the Medical Home?

The presence of psychiatrists in primary care clinics usually involves the psychiatrist serving as a specialty consultant for patients with medical and psychiatric disorders. It is unclear whether this role may change as primary care moves toward a patient-centered medical home model. Perhaps the psychiatrist will become a member of the medical home team, working directly with the primary care physician to provide patient-centered care. Also, psychiatrists are routinely trained in interdisciplinary treatment planning and thus may be able to teach primary care physicians the basic mechanisms of leading an interdisciplinary team. Psychiatrists may find a new role in primary care clinics and a new role in a mental healthcare delivery system based on the principles of the medical home model.

What Is the Mental Health Home?

As in primary care, psychiatric care is often fragmented. Patients with severe mental illness may receive care from several sources, including hospital wards, clinics, day-treatment programs, rehabilitation programs, intensive case managers, and assertive community treatment teams.

This system may diffuse patient care responsibility over several groups, clouding the picture of who serves the role of primary clinician. Smith and Sederer (4) recently proposed the details of a mental health home.

One goal of the mental health home is to reduce fragmented care by encouraging accountability, continuity of care, family involvement, and coordinated care among a primary team of clinicians. The mental health team could promote continuity of care in several ways, such as seeing their hospitalized patients in inpatient units and sending a team representative to a patient's home subsequent to a missed appointment. One can also imagine a model with primary care physicians serving as members of a mental health home, incorporating primary care into psychiatric care settings. This model refocuses the team toward patient-centered care, perhaps improving care coordination and patient-clinician communication.

Dr. Cerimele is a second-year resident at Mount Sinai School of Medicine and the Editor for this issue.

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Child Psychiatry in Primary Care

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It is estimated that up to 20% of all children suffer from a diagnosable mental health disorder (1, 2). As of 2000, approximately 6,300 child and adolescent psychiatrists were practicing in the United States, equating to an average of one psychiatrist for every 3,000 afflicted youth (3). Consequently, primary care physicians have delivered much of the emotional and behavioral healthcare to our nation's children.

Recognizing the reality of this situation, the American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP) released a joint position paper, in April 2009, highlighting the importance of and barriers to primary care delivery of mental health services (4). The paper describes the administrative and financial obstacles of managing psychiatric illness in primary care. Some of the problems recognized include insurance plans that preclude reimbursement to primary care physicians for mental health diagnostic codes, insufficient compensation for non-face-to-face components of mental healthcare (including communication with family, schools, and other involved agencies), and lack of incentive for the incorporation of child mental health professionals into multidisciplinary primary care teams. By identifying these issues, especially in the current atmosphere of healthcare reform, the AAP and AACAP hope these obstacles will gain attention and be addressed accordingly.

Several barriers beyond these logistical limitations may further complicate the delivery of child mental health services in primary care. Due to insufficient training or experience, primary care physicians may not feel comfortable recognizing and treating mental illness. In one study conducted by Heneghan et al. (5), more than 90% of 132 primary care pediatricians surveyed felt that it was their

responsibility to identify attention deficit hyperactivity disorder (ADHD) in their patients, and 86% felt responsible for treatment. In the same study, however, while more than 84% of pediatricians agreed that it was their responsibility to identify other psychiatric diagnoses, such as depression, anxiety, substance abuse, and eating disorders, fewer than 17% felt responsible for the treatment of other diagnoses. Consequently, treatment of psychiatric disorders other than ADHD is often left for referral to an understaffed community of child psychiatrists.

Several groups have taken the initiative to remedy some of these barriers by forming collaborative care models to facilitate communication between primary care physicians and child psychiatrists. Two such initiatives are the Targeted Child Psychiatric Services (6) and a program in Armstrong County, Pa., affiliated with the Western Psychiatric Institute and Clinic (7). In both models, primary care physicians provide the first line of care by identifying children with mental health concerns. In the Targeted Child Psychiatric Services program, the primary care physician conducts a telephone consult with an on-call child psychiatrist, eventually leading to a mental health referral if necessary. In the Armstrong County program, the identified child is directed to an on-site advanced practice nurse, who evaluates and triages the child to on-site care with the primary care physician, an advanced practice nurse, a social worker psychotherapist, and/or a part-time child psychiatrist or to off-site care with specialty mental health services. It has yet to be determined how translational these programs will be, but both offer needed solutions to the management of a complex child mental healthcare system.

Dr. Robinson is a first-year resident at Columbia University.

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Meeting the Mental Health Needs of All Children Through Pediatric/Child Psychiatry Collaboration

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"[We are] confronted with the chasm that separates what we know about the causes and treatments of children's psychiatric disorders and what we as a society actually provide."

— Melvin Lewis (1)

As a society, we are not doing enough to address the mental health needs of the estimated 74 million children in the United States. According to the 2000 Surgeon General's report (2), 13.7 million U.S. children suffer from mental illness, only 20% of whom receive care (2). To address this service gap, much is being done to increase the number of child and adolescent psychiatrists (3). Nevertheless, for various reasons, this effort is unlikely to address the significant breach between what children need and what they can expect to receive. An important step in closing the mental-health service gap must involve an expansion of our mental health service delivery system through more in-depth collaboration between child and adolescent psychiatrists and pediatricians.

Recent data on U.S. physician characteristics show that 75% of child and adolescent psychiatrists classify themselves as "office-based" or "solo" practitioners (4). Since children's mental health outcomes are shaped heavily by events experienced within their communities, solo office-based child and adolescent psychiatric practice is an inefficient method for meeting the large range of children's mental health needs. Pediatricians, on the other hand, are much "closer to the action." They forge long-lasting relationships with children and families early in life, provide all levels of medical interventions, and are explicitly mandated to oversee both universal prevention as well as targeted and indicated treatments. Moreover, even when directed toward mental health needs, pediatric care is likely to involve less stigma than mental healthcare. Therefore, child and adolescent psychiatrists and pediatricians should formalize a collaborative infrastructure that builds upon our com-

mon bond as physicians to prioritize the mental health needs of children. Although pediatricians and child and adolescent psychiatrists recognize this need (5, 6), consensus has not yet emerged to prioritize and make efficient this partnership. With a commitment to prioritize this collaboration, we can develop a formalized structure to more effectively address current mental health needs of children and their families.

Child and adolescent psychiatrists can have a broader public health impact by shifting focus from the office to new intervention approaches and settings, including: clinics at schools or daycare, training sessions with school teachers and counselors, collaboration with law enforcement, outreach and crisis response, home-based services, advocacy with legislators for programs focused on mental health awareness, and creation of models of early intervention with parents (e.g., 7). All of these approaches challenge the current pattern of child psychiatry practice, yet they are consistent with the original principles of our field. However, relative to each of these approaches, the pediatric-child psychiatrist partnership provides a particularly unique opportunity to address the current crisis in pediatric mental healthcare delivery. Society currently views pediatricians as key overseers of children's healthcare, and pediatricians recognize mental health needs as among the most pressing issues they confront (6). As a result, a child and adolescent psychiatrist-pediatrician alliance is likely to be more successful than the entry of child and adolescent psychiatrists alone into various nonmedical settings, such as schools or law enforcement, where questions of stigma and medical relevance exist. In the context of established

patterns of regular pediatric care, increasingly formalized child and adolescent psychiatrist-pediatric collaboration could enable early-life mental health screening and prevention. This, in turn, could identify millions of underserved affected and at-risk children early and provide effective interventions, potentially reducing the number of children with emotional problems.

In this model, child psychiatrists and pediatricians would be members of a team based in primary care, working collaboratively (beginning with the child's first well-baby visit) to assess, prevent, and treat mental health problems common in children (8). This partnership will, first, need coordination of national organizations and, second, require reorganized training that reflects the importance of pediatrician liaison and early intervention. Child and adolescent psychiatrist training is already dense and heavily weighs on inpatient care, and thus the educational focus must shift toward training fellows within this pediatric outpatient setting. For pediatricians, similar changes may be required with expanded training in psychosocial concepts as well as additional outpatient experience with mental illness assessments and interventions. Nonphysician staff, including nurses and social workers, must also be able to receive alternative training in order for this approach to be implemented.

This new primary care-based team-oriented model will require formalization. Child and adolescent psychiatrists and pediatricians will need to specify together which aspects of mental healthcare are delivered by which members of the team. Models for this should be outlined

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through meetings of a joint American Academy of Pediatrics (AAP)/American Academy of Child and Adolescent Psychiatry (AACAP) task force, but each pediatric-psychiatric partnership will require elements tailored to their needs and situation. Consensus will be required to delineate, at a minimum, how mental health additions will be made to screenings and treatments based in the pediatrician's office, how child and adolescent psychiatrists will provide oversight of assessments and care delivered in pediatric offices, and how, when indicated, individual children ultimately will be referred from a pediatrician to a child and adolescent psychiatrist.

Although this new primary care-based model provides an optimal setting in which evidence-based universal, targeted, and indicated interventions may be delivered, ensuring feasibility within the pediatric setting will be critical. In this paradigm, pediatric staff can be trained to directly provide the psychosocial interventions outlined in the present article, while pediatricians can more effectively manage overall treatment plans and psychopharmacology for common mental illnesses. Pediatric-psychiatric collaborative care might begin with universal collection of mental health data from families as part of well-child care. Early education about risk factors and mental illness could then be integrated into routine visits. Brief parent management interventions may prevent and help reduce childhood behavior problems with, for example, sleep, tantrums, and sibling conflict. Given the number of children seen by individual pediatricians, group-based treatments for at-risk children could be delivered within the context of the pediatric setting, as supervised by child and adolescent psychiatrists and other specialists. Thus, when initial screening indicates the need,

more targeted psychoeducation and group programs, such as the Incredible Years or Community Parenting Education, can address relevant problems identified in evaluations (9). When problems, such as anxiety disorders, require indicated intervention, the most appropriate combination of cognitive-behavioral therapy and psychopharmacology can be coordinated within the same setting (10).

Child and adolescent psychiatrists will be doing very different work on a daily basis within this partnership, whether they travel to two pediatric offices 1 day per week or attend 8 to 10 clinics each week. Therefore, the specifics of child and adolescent psychiatrist consultation must also be delineated. For example, a child and adolescent psychiatrist may devote 4 hours per week to one clinic (first with an educational in-service, followed by clinical rounds with all pediatric staff to facilitate the success of targeted interventions and then individualized supervision for staff delivering the majority of psychoeducation and interventions). The final hour may be spent in assessment with a referred child who has not responded to the level of care provided entirely within the pediatric clinic. Consultation would then be provided to the pediatrician to optimize the treatment plan.

Ultimately, some children will require referral for problems that are not amenable to treatment in the pediatric setting. In this model, such referrals will be seamless, since all parties involved—pediatrician, child psychiatrist, and, importantly, the child and family—will have already participated in a variety of psychiatric interventions and will be better prepared for referral. With these first steps, the psychiatric referral would potentially have less associated stigma. Most importantly, direct access to child and adolescent psychiatrists would occur within the context of a systematic, team-oriented approach, whereby the least invasive, most avail-

able methods will have already been tried. Child and adolescent psychiatrist involvement in all levels of care will facilitate treatment planning for children who require indicated treatment outside the primary care system. Child and adolescent psychiatrists have better access to the myriad of evidenced-based treatments and can coordinate and integrate treatment components. The child and adolescent psychiatrist can continue to give updates at weekly rounds for a child receiving outside treatment. Children can be referred back to care from the pediatrician in a step-down manner in some cases. For serious emotional disturbances that may be life-long, child and adolescent psychiatrists will lead the treatment in the context of a close collaborative relationship with the pediatrician.

Despite its strengths, implementing this model has limitations and will come at a cost. Those children and families that have difficulty accessing general healthcare will still not benefit from this expanded access to mental healthcare. The required changes are also significant. Creating the pediatric/psychiatric partnership is akin to creating a new field of medical practice. Indeed, physicians and nurses currently in pediatrics and psychiatry may not have sufficient interest in this type of practice to provide the necessary labor force. Even for interested child and adolescent psychiatrists, the reduction in direct patient contact (a reason that many child and adolescent psychiatrists chose the field) and potential challenge of funding may lead to slower adoption of the model. Legislation addressing mental health parity will not, in theory or in practice, address these funding issues. Studies evaluating the cost effectiveness of this model and the inclusion of this type of service for reimbursement are important for our ability to expand our public health effect. Pilot programs, such as the one in Massachu-

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setts utilizing state funding, are currently under development and are the first steps toward realizing this model (5).

In order to close the gap between the available resources and unmet mental health needs of children and families, our field must adopt new roles, with old principles to guide us. Office-based practice of psychiatric disorders in children will remain at the center of child psychiatric practice. However, we must augment our current approach with new, systematic, and organized collaboration with pediatricians. Emphasis on this collaboration can improve the prevention of childhood psychiatric disorders, offer early identification and effective treatment, and provide continuity of care for the seriously emotionally disturbed, keeping developmental pathways from going off track (11). By solidifying a public health approach, we can also keep the population of children on track, contributing to communities creatively and economically and to the mental health of future generations.

Dr. Stevens is Chief Resident of the Solnit Integrated Adult and Child Psychiatry Residency Program at the Yale Child Study Center.

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Perinatal Depression: To Treat or Not to Treat?

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A common treatment challenge to mental health providers is depression during the perinatal period. The risks associated with fetal exposure to medication (e.g., teratogenesis, newborn withdrawal, neurobehavioral sequelae) must be weighed against the risk to both the mother and infant if the mother's depression remains untreated. It is vital that treatment providers consider psychotherapy as adjunctive, or even primary, treatment to minimize risk to the fetus and maximize outcomes.

Most medications commonly used to treat depression and anxiety are Food and Drug Administration class C and D drugs. Class C drugs have demonstrated adverse effects on the fetus in animal studies. However, to date, there are no controlled studies in women. Class D drugs have demonstrated fetal risks that may outweigh any benefit when used in pregnant women. Paroxetine was recently changed to a category D drug as a result of evidence supporting the risk of congenital malformations. Problems with current research and drug classification include few randomly controlled trials and drug reporting databases that rely on physician reporting and recall. Most existing investigations are cohort studies or retrospective case-control studies with small sample sizes.

When assessing risk to the fetus, it is important to remember that congenital anomalies occur in 3%–5% (baseline level) of live births. This must be factored in when considering whether or not a therapy will pose an elevated risk to the fetus. There is some evidence suggesting that antidepressant use during pregnancy leads to preterm birth. Paroxetine is the most common agent to cause this syndrome, followed by fluoxetine, and tricyclic antidepressants have also been associated. Persistent pulmonary hypertension has been reported with antidepressant use later in pregnancy,

resulting in disruption of normal circulation, which leads to decreased blood flow in the child and hypoxemia at birth.

Issues regarding untreated depression are also unclear. Pregnancy was once thought to be protective against depression. The etiology of untreated depression is multifactorial. At a biochemical level, maternal stress alters levels of stress hormones. Beta-endorphin and adrenocorticotrophic hormone levels have been found to be altered in depressed pregnant women, leading to altered levels of stress hormones in the developing infant. Newborns of depressed women often have lower birth weights and are born at earlier gestational ages. In animal models, maternal stress has been reported to lead to lower birth weights, fetal hypoxia, smaller litter sizes, and even miscarriage (1).

Untreated depression causes decreased energy and interest in previously important activities, irritability, social withdrawal, and guilt. Evidence suggests that depressed mothers are less positive and engage in less interactive, less vocal, and less play with their children. Differences in the behavior between infants of depressed mothers and a comparison group of infants of non-depressed mothers were reported as being noticeable as early as 2 months of age (2). These infants also display less socially interactive behavior and mirror some of the same depressive behaviors as their mothers. Insecure attachment has been correlated with future episodes of major depressive disorder, obsessive compulsive disorder, social anxiety, and chronic pain disorder.

The presence of depression early in the postpartum period can also affect parental behaviors regarding safety, development, and discipline. In a study conducted by McLearn et al. (3), concurrently depressed mothers of 33-month-old children were less likely to use electric outlet covers and door latches, talk with the

child, limit television and video watching, and follow daily routines. Mothers with depressive symptoms are also more likely to use harsh punishment instead of time outs. The presence of depressive symptoms in the mother early in the postpartum period can have lasting effects on infant development.

When providing guidance in the perinatal period to women already receiving antidepressant pharmacotherapy, the same risk-benefit assessment must be performed. Since many individuals take selective serotonin reuptake inhibitors, it is inevitable that we will encounter pregnant women taking these medications. Before advising women on the proper course of action, it is important to be aware of the sequelae of the discontinuation of these medications in female patients who are already stable while on them.

Naturalistic data on antidepressant discontinuation exist because many women choose to discontinue these drugs after conception. In a prospective study, Cohen et al. (4) found that 43% of 201 mothers with a history of major depressive disorder experienced a relapse of depression during pregnancy after discontinuation of antidepressant treatment. Women who experience relapse after medication discontinuation must then decide whether or not to restart treatment. It may subsequently take several weeks for remission to recur.

For women with recurrent major depression, as defined by three or more lifetime episodes, the risk of another episode during pregnancy is very high. One study (5) found that the median time to relapse was 21 weeks in women without maintenance treatment with medications. An intervention of interpersonal psychotherapy prolonged the time to relapse to 54 weeks (3). This has many important implica-

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tions. Insult during early trimesters may be more toxic to the developing child, since it is a time of organ and system development. Pregnant women may be more willing to take medication during the later stages of pregnancy once they understand each stage of fetal development. A therapeutic intervention that prolongs the time to relapse could be very beneficial to women who are reluctant to take antidepressant medication in the early stages of pregnancy.

Studies investigating psychotherapy as treatment for perinatal depression are limited because they are difficult to conduct. It is more practical to conduct studies on therapies that are manualized, such as cognitive-behavioral therapy (CBT) and interpersonal therapy.

Pregnancy is stressful to many women, since it can be a time of change and the unknown. Processing the emotions associated with these changes and uncertainties under the guidance of a mental health professional can reduce anxiety and depressive symptoms.

Dr. Ruth is a second-year resident at the University of Louisville.

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Clinical Case Conference

Sarah B. Johnson, M.D.
Editor-in-Chief

This month, we are excited to launch a new feature of the Residents' Journal that was developed as a result of your feedback during the 2009 annual meeting of the American Psychiatric Association. The purpose of this feature is to highlight interesting issues that arise in treatment. A brief case presentation is followed by a discussion of the clinical issue and how it was addressed. These cases and their references can be used as independent educational tools or shared with your colleagues during a journal club meeting or case conference at your institution. If you encounter an interesting case that would be appropriate for this feature, please consider submitting it for publication. All submissions should be no more than 1,000 words, with no more than five references.

Risperidone-Induced Bicytopenia

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Psychiatric care often overlaps with internal medicine, and at times the psychiatrist functions as the primary care physician. For example, a hematological abnormality presents an ubiquitous adverse effect associated with the use of multiple psychiatric medications (both antipsychotics and mood stabilizers). The association between clozapine and agranulocytosis is ingrained in medical students, but less well known is the adverse sequelae of pancytopenia with the use of risperidone. Risperidone is an atypical antipsychotic medication, with primary indication for schizophrenia. Its side effects include extrapyramidal symptoms, weight gain, gastrointestinal problems, decreased sexual interest, and, rarely, hematotoxicity. The following case illustrates the rare adverse effect of hematotoxicity and describes how the condition was addressed.

"Mr. B" was a 44-year-old African American man with a long history of undifferentiated schizophrenia. The patient was hospitalized as a result of disorganized thought processes, sexually inappropriate behaviors, and severely poor self care. He had been non-compliant with his medications. Upon admission, baseline laboratory examinations were performed. Laboratory results revealed an abnormal complete blood count as follows: white blood cell count: 3.40 ($4.10-10.80 \times 10^3/\text{mm}^3$); hemoglobin level: 13.3 (13.7-17.5 g/dl); hematocrit level: 39.1% (40.1%-51.0% of red blood cells); mean corpuscular volume: 91.8 ($79.0-92.2 \mu\text{m}^3$); and platelet count: 205 ($140-370 \times 10^3 \mu\text{L}$). A complete metabolic panel and urinalysis were within normal limits. A physical examination was conducted, and it was normal.

Mr. B had been taking risperidone with intermittent medication compliance. Risperidone (3 mg twice daily [by mouth])

was continued when he was admitted to the hospital, with 2 mg every 6 hours (by mouth) as needed for anxiety and agitation. A complete blood cell count was repeated on hospital day 5, with the following results: white blood cell count: 2.80; hemoglobin level: 11.6; hematocrit level: 34.2; and platelet count: 201. These results revealed lowering of the patient's white blood cell count from admission. Internal medicine was consulted for bicytopenia (leucopenia and anemia). Iron, B12, and folate studies showed normal results, and internal medicine attributed the bicytopenia to risperidone-induced hematotoxicity. Risperidone was discontinued, and a repeat complete blood cell count revealed that the patient's condition had improved, (white blood cell count: 3.13; hemoglobin level: 12.8; hematocrit level: 37.9; and platelet count: 203). The patient remained afebrile and asymptomatic during the period of suppression.

Mr. B was stabilized on a different atypical antipsychotic and subsequently discharged to his home where he was able to care for himself. He was not re-challenged with risperidone.

The hematological effects of conventional antipsychotics include transient leucopenia (white blood cell count $<3,500/\text{mm}^3$), which is not usually problematic but potentially life threatening infection can occur in severe cases, and agranulocytosis (white blood cell count: $<500/\text{mm}^3$), which can be a life threatening problem. These potential side effects are not restricted to just the typical antipsychotics. In the present case, risperidone was believed to be the etiologic agent causing

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the patient's bicytopenia.

It is important to consider the medication side effect in the differential diagnosis of hematologic abnormalities in psychiatric patients treated with antipsychotics. Low potency antipsychotics have a higher frequency of agranulocytosis than higher potency antipsychotics (1). Clozapine causes agranulocytosis in approximately 0.8% of patients, and the highest risk is in the first 6 months of treatment. Aripiprazole and ziprasidone are antipsychotic agents without reported hematologic side effects (1, 2).

The management of patients with medication-induced blood dyscrasias includes close monitoring of serial complete blood counts. Leukopenia (white blood cell count: 2,000–3,000) or granulocytosis (white blood cell count: 1,000–1,500) requires immediate cessation of the suspected offending agent. A white blood cell count <1,500 is dangerous, and patients may require hospitalization, isolation, and antibiotic therapy if signs of infection develop. A hematology consult is recommended. Filgrastim and sargamostim, two granulocyte stimulation

factors, have been used to shorten the period of bone marrow suppression in patients treated with clozapine (2)

Patients receiving polypharmacy and individuals with lower baseline white blood cell counts may be particularly susceptible to hematologic side effects (2). In order to attribute a hematologic abnormality to a specific medication, the patient must have a normal complete blood cell count prior to initiation of therapy, followed by a decline in the patient's white blood cell count. Upon cessation of the agent, one would expect the white blood cell count to recover. However, relapse would occur with rechallenge, which is relatively contraindicated. Polypharmacy and lack of a complete blood cell count prior to initiating therapy may be confounding factors when trying to establish the etiology.

In the case of the present patient, the treatment team established a baseline complete blood cell count prior to treatment, after a period of presumed medication discontinuation. This allowed for accurate assessment of rebound to pre-morbid levels following discontinuation of risperidone. The psychiatry team quickly collaborated with the internal medicine service, and a thorough hema-

tologic work-up was performed.

In order to “do no harm” to the vulnerable patients that we treat each day, we must be informed of potential adverse effects of psychotropic medications and monitor our patients appropriately. When medical issues or laboratory abnormalities arise in the psychiatric patient population, it is important to consider a wide-range differential diagnosis. Many psychiatric patients suffer from common medical problems, such as anemia and transient leucopenia, due to poor nutrition and other factors. Thus, it is important to consider common etiologies as well as the rare “zebra,” as illustrated in this case.

Drs. Kendhari, Campbell, and Bains are first-year residents at the University of Louisville.

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Date: **Monday, May 24, 2010**

Time: **9:00 AM to 10:30 AM**

Location: **RM 346/347 in the
Morial Convention Center**