

THE CARLAT REPORT

CHILD PSYCHIATRY

A CME Publication

Subscribe today!
Call 866-348-9279

UNBIASED INFORMATION FOR CHILD PSYCHIATRISTS

Caroline Fisher, MD, PhD
Editor-in-Chief

Volume 3, Number 2

March/April 2012

www.thecarlatchildreport.com

IN THIS ISSUE

Eating Disorders

- Family-Based Therapy to Treat Anorexia Nervosa — 1
- Bones and the Blues — 1
- Expert Q & A — 4
Debra Katzman, MD
Eating Disorders in Children and Adolescents
- Research Updates — 6
 - Do medications Boost Academic Achievement in Children with ADHD?
- Post-Test — 7

Learning objectives for this issue:

1. Effectively treat anorexia nervosa with family-based therapy.
2. Explain how SSRI use can effect bone growth.
3. Describe characteristics of eating disorders in children and adolescents.
4. Understand some of the current findings in the literature regarding psychiatric treatment.

Family-Based Therapy to Treat Anorexia Nervosa

Kathleen Kara Fitzpatrick, MD
Instructor of psychiatry
Stanford University/Lucille Packard Children's Hospital

Dr. Fitzpatrick has disclosed that she has no relevant relationships or financial interests in any commercial company pertaining to this educational activity.

The role of families in the treatment of mental illness has always been a tenuous one. Often blamed (think refrigerator mothers), but also expected to provide continuous care for the afflicted loved one, families carry a significant burden. Nowhere is this dichotomy more visible than in the treatment of anorexia nervosa (AN), where it has long been assumed that “enmeshed families” and overbearing parenting styles create an environment for the development of eating pathology. For far too long, treatment consisted of long-term hospital stays, and treatment approaches generally excluded families in

the belief that the “parentectomy” was the correct course of action for the welfare of the child.

The Maudsley Model

Fortunately, in recent years there has been increasing focus on empowering families to take an active role in a child's weight restoration and treatment. This change resulted from the increasing empirical support for family-based therapy (FBT), often referred to as “The Maudsley Model” from its historical roots at the Maudsley Hospital in London where it was developed. The therapeutic techniques themselves draw from narrative, systemic, and strategic family therapy theories.

However, the genesis of the therapy came from the experiences of hospital staff who noted that patients achieved weight restoration as inpatients, but failed to maintain these gains when discharged. The problem? Parents do

Continued on page 2

Bones and the Blues

Robin Berlin, MD
Assistant clinical professor of psychiatry
George Washington University School of Medicine

Dr. Berlin has disclosed that she has no relevant relationships or financial interests in any commercial company pertaining to this educational activity.

SSRIs have been around for a long time and generally are thought to have a fairly benign side effect profile. However, these are medications that are taken for many months or even years, and it is important to consider the potential long-term effects on your patients.

One highly-publicized possible sequela of long-term SSRI treatment is damage to bones. This could be a cause for concern particularly during adoles-

cence, which is a time of rapid bone growth that likely has repercussions for skeletal health years down the road. The problem is compounded by the risk to bones inherent in adolescents with eating disorders and/or depression.

Do SSRIs and Depression Have an Impact on Bone Density?

Most studies of SSRIs and bone loss are in older adults. The majority of these have noted an association between SSRI use and lower bone density (see for example, Richards JB et al, *Arch Intern Med* 2007;167(2):188–194; Diem SJ et al, *Arch Intern Med* 2007;167(12):1240–1245). This has clinical impact as well: elderly women taking SSRIs had higher rates of fractures than those not taking them in a prospective cohort study of

Continued on page 3

Family-Based Therapy to Treat Anorexia Nervosa

Continued from page 1

not approach renourishment the way nursing staff on an inpatient unit does. The solution? Train families to feed their starving child using the same mix of firm, compassionate, and focused resolve. Thus, rather than pathologizing or marginalizing families, FBT places them at the center of their child's treatment, with a mandate to create an environment that fosters rapid renourishment.

The Fundamentals of Family-Based Treatment

The basic tenets of FBT are relatively simple: 1) families are uniquely positioned to assist their children in making and maintaining healthy behavioral choices; 2) families possess the skills to help their children and can be instrumental in this process; 3) families help maintain patients in their home environment and encourage continued participation in activities of daily living, and 4) focusing on current illness optimizes recovery and fits with an agnostic approach to the cause of the illness.

It is important to remember that

EDITORIAL INFORMATION

Editor-in-Chief: **Caroline Fisher, MD, PhD**, is an assistant professor at UMass Medical School, medical director at Pediatric Behavioral Health in West Boylston, MA.

Associate Editor: **Marcia Zuckerman, MD**, is associate editor of *The Carlat Psychiatry Report* and a psychiatrist at Arbour-HRI Hospital in Brookline, MA.

Executive Editor: **Amy Harding, MA**

Editorial Board:

Peter Parry, MBBS, is consultant child & adolescent psychiatrist and senior lecturer at Flinders University in Adelaide, Australia.

John Preston, PsyD, is a professor emeritus at Alliant International University in Sacramento, CA.

Jess Shatkin, MD, MPH, is vice chair for education at NYU Child Study Center at NYU School of Medicine in New York, NY.

Dorothy Stubbe, MD, is director of residency training and an associate professor of psychiatry at Yale Child Study Center in New Haven, CT.

All editorial content is peer reviewed by the editorial board. Dr. Carlat, Dr. Fisher, Dr. Parry, Dr. Preston, Dr. Shatkin, Dr. Stubbe, Dr. Talan, and Dr. Zuckerman have disclosed that they have no relevant financial or other interests in any commercial companies pertaining to this educational activity.

This CME/CE activity is intended for psychiatrists, psychiatric nurses, psychologists and other health care professionals with an interest in the diagnosis and treatment of psychiatric disorders.

FBT has been developed for use with children and adolescents who are stable enough for outpatient treatment. In the outpatient setting, treatment consists of 10 to 20 50-minute sessions that take place over six months to one year.

Treatment is divided into three phases:

- Phase 1 involves psychoeducation and a mandate for parents to renourish their child.
- Phase 2 transfers control over food, eating, body image, and weight concerns back to the adolescent in a developmentally appropriate and sustainable manner.
- Phase 3 addresses issues of adolescent adjustment and relapse prevention.

The treatment manual describing this approach is widely available (Lock J et al, *Treatment Manual for Anorexia Nervosa: A Family Based Approach*. New York, NY: The Guilford Press; 2001).

Phase 1 of Treatment

Phase 1 (sessions one to 10) focuses on parental renourishment efforts. AN, by definition, is a disease in which the patient most often denies the seriousness of the illness. This can be difficult for families, even for clinicians, as it is the only Axis I disorder that is ego-syntonic. This means that the very behaviors that patients seek to amplify and maintain are the ones placing them in the greatest danger. Within FBT, disrupting the cycle of restricted intake, excessive exercise, and other illness-maintaining factors becomes the primary goal. Although often thought of as parental "force feeding," the goals of Phase 1 are to help families understand the nature of AN, and use their skills to disrupt these behaviors and provide the nourishment necessary for their child to recover. Stated simply, rather than the child being "forced" to eat, FBT uses the strength of the parental relationship to insist upon increased intake.

In the first session of treatment, the therapist takes a directed history, focusing on the development of AN and engaging all members of the family to understand the ways in which the disease has touched them. The goal is to assess familial skills and efforts toward recovery and to better understand what

has, and has not, worked in helping the patient recover. The family is held in positive regard and the use of both a non-judgmental and agnostic approach assists with this. With an agnostic approach, a therapist puts aside ideas about the cause of illness and instead focuses on the current symptoms. This lack of judgment of families is critical to exhorting the family to action. The history gathering can assist the family in externalizing the illness from the patient and highlighting the ways in which the child may be "operating under the influence of AN" and yet be doing quite well in other areas of his or her life.

The call to action is furthered by the therapist painting an "intense scene" outlining the serious potential risks of the illness, including the increased risk for death. At the end of the session, parents are charged with the task of renourishing their ill child and instructed to "bring a meal you feel your starving child needs to eat to overcome AN" to the next session. Families are not provided with further instruction on meal preparation, and further coaching occurs in the second session.

In the second session of FBT, the parents prepare and bring a meal that is shared by the family (but not the therapist). This provides the therapist an opportunity for direct instruction around appropriate intake to speed weight gain, and helps the family learn how to get the child to eat "one bite more." In this capacity, the therapist can guide both the types of meals the family prepares, and provide direct coaching on how to increase calorie density and the amounts and frequency of eating behaviors. In addition, the therapist coaches the parents to take an empowered and unified approach against AN, while urging increased food intake. Such coaching helps families engage in selective ignoring of non-nourishing behaviors, encourages positive behaviors, changes the physical arrangement of the family to bring parents in closer to the identified patient, and assist in keeping a solid focus on eating behaviors.

The rest of the sessions in Phase 1 reinforce these skills and assist families in problem-solving around challenges with an effort toward continued weight gain of one to two pounds per week. Parents are

Continued on page 3

strongly encouraged to monitor all meals and may choose to take family leave to spend more time at home. Siblings are asked to support the patient, but are not involved in direct renourishment efforts.

Phase 2 of Treatment

Families are ready to transition to Phase 2 when the patient has reached approximately 90% of ideal body weight and is eating with relatively little struggle. In addition, parents should feel sufficiently empowered to take over renourishment efforts if they are concerned their child might relapse. While parents have been firmly in control over food choices, meal times, and structure during Phase 1, during this second phase the emphasis shifts toward supporting the child or adolescent in making independent choices. This process occurs slowly; for example, adolescents prepare their plate of food with parental monitoring before

progressing to independently serving their meals. Families are encouraged to experiment with increased flexibility, such as incorporating take out or restaurant meals, varying types of food, and decreasing structure around meals to allow for greater autonomy. Consistent with the patient demonstrating greater skills in these areas, sessions are extended to every other week.

Phase 3 of Treatment

When the adolescent has made a return to fully normal and independent eating, the final phase of treatment—consisting of three sessions over the course of three months—focuses on education about normal adolescent development, relapse prevention, and the end of therapy. Some families may choose to continue with other methods of treatment at this stage, but they should resolve any issues related to eating disorders.

The empirical evidence for FBT indicates that this treatment is effective for both children and adolescents, can be completed in a six-month period, and is more effective at bringing patients to recovery than a strong individualized approach. FBT can be done in two ways: in sessions with the parents only or conjointly with the patient also present. The separated models are best for families with high levels of criticism. FBT has been used with children and adolescents presenting with subthreshold AN (EDNOS AN) and is efficient and effective in this population as well. Current research is exploring the benefits of FBT to treat adolescents with bulimia nervosa (BN), in young adults, and in a pediatric obesity sample. Training, supervision, and certification are available from the Training Institute for Eating Disorders run by James D. Lock, MD, PhD, and Daniel le Grange, PhD (www.train2treat4ED.com).

Family-Based Treatment for Anorexia Nervosa

Phase	Focus	Key Features
Phase 1	Focuses on psychoeducation and a mandate for parents to renourish their child	<ul style="list-style-type: none"> Disrupts behaviors like restricted intake and excessive exercising Uses the strength of the parental relationship to insist upon increased intake Uses the agnostic approach of putting aside ideas about the cause of illness and instead promotes a focus on the current symptoms Offers direct coaching on increasing calorie density, and the amounts and frequency of eating behaviors Helps families engage in selective ignoring of non-nourishing behaviors, encouragement of positive behaviors, and assistance in keeping a solid focus on eating behaviors
Phase 2	Transfers control over food, eating, body image, and weight concerns back to the adolescent in a developmentally appropriate and sustainable manner	<ul style="list-style-type: none"> Patient has reached approximately 90% of ideal body weight and is eating with relatively little struggle Emphasis shifts toward supporting the child or adolescent in securing appropriate independence around renourishment Families are encouraged to experiment with increased flexibility, such as incorporating take out or restaurant meals, varying types of intake and decreasing structure around meals to allow for greater autonomy
Phase 3	Explores issues of adolescent adjustment and relapse prevention	<ul style="list-style-type: none"> The adolescent has made a return to fully normalized and independent eating Focus is on education on normative adolescent development, relapse prevention, and termination

more than 8,000 women (Diem SJ, *Calcif Tissue Int* 2011;88(6):476–484).

However, the data in children is scarce. One study of boys taking risperidone (Risperdal) found that bone density was further decreased if they also were taking an SSRI (Calarge CA et al, *J Clin Psychiatry* 2010;71(3):338–47). In (presumably non-depressed) adolescent mice given SSRIs, the outcome was not only less bone mass overall, but also weaker bone architecture (Warden SJ et

al, *Endocrinology* 2005;146(2):685–693). Could the impact of SSRIs on the long bones and spine during this period lead to shorter stature? One small study showed overall growth retardation in all of four adolescents that were followed longitudinally while taking SSRIs, with resumption of normal growth rate after stopping them. However, three of the patients had abnormally short stature to begin with, and some were taking other medications (Weintrob N et al, *Arch*

Pediatr Adolesc Med 2002;156(7):696–701).

However, there is a classic chicken-and-egg conundrum here: *depression*, regardless of treatment, also is associated with osteopenia. Most studies that have looked at this (for example, Schweiger U et al, *Am J Psychiatr* 2000;157:118–120, and Michelson D et al, *N Engl J Med* 1996; 335:1176–1181) have found that depressed adults have about 5% to 15%

Continued on page 6

Q & A
With
the Expert

Expert Interview

Eating Disorders in Children and Adolescents

Debra Katzman, MD

*Professor and head of division of adolescent medicine, Hospital for Sick Children, and University of Toronto
Senior Associate Scientist, Research Institute, Hospital for Sick Children
Toronto, Ontario*



Dr. Katzman has disclosed that she has no relevant relationships or financial interests in any commercial company pertaining to this educational activity.

CCPR: Dr. Katzman, you have been the director of an eating disorder program for children and adolescents and a researcher. I'd like to begin by talking about an article you and your collaborators recently published on the incidence of eating disorders in children ages five to 12. What did you find?

Dr. Katzman: The incidence of early-onset restrictive eating disorders in children aged five to 12 years reported by Canadian pediatricians was 2.6 cases per 100,000 person-years. The ratio of girls to boys was 6:1, and 47.1% of girls and 54.5% of boys showed signs of growth delay. Forty-six percent of children were below the 10th percentile for body mass index, 34.2% were initially seen with unstable vital signs, and 47.2% required hospital admission. That means that younger children do get eating disorders, and that they get sicker more quickly. Younger boys are more likely to get eating disorders than older boys. Only 62.1% of children met criteria for anorexia nervosa (AN), whereas the remainder met criteria for food emotional avoidance disorder [a condition recognized in the UK, but not included in DSM-IV] (Pinhas L et al, *Arch Pediatr Adolesc Med* 2011;165(10):895–899). Doctors need to understand that eating disorders can be childhood-onset illnesses.

CCPR: How does the presentation of a younger child differ from that of an adolescent or adult?

Dr. Katzman: Children may present with weight loss, and they can lose weight rapidly, but they may also present with failure to gain weight. One may see a child who loses a whole bunch of weight precipitously over a short period of time (one to two months), as well as the more subtle cases of kids who don't actually lose weight, but don't gain weight either. Kids aren't supposed to be doing that; kids are supposed to be growing and developing—gaining in weight and growing in height. So if somebody is falling off of the growth curve, I think that's enough to be very suspicious and to follow the child more closely.

CCPR: How often do you think physicians should be following up on these kids?

Dr. Katzman: I don't want to be too prescriptive in this, but weekly for the first while, because these kids can lose weight really quickly and become quite medically compromised.

CCPR: In addition to monitoring weight and vital signs, what is the best way to treat eating disorders?

Dr. Katzman: The treatment with the most evidence base and therefore the treatment of choice for eating disorders is a family-based therapy. There are many types of family-based therapies, but the Maudsley approach is the one that has been most studied and the one that has shown to be the most effective treatment for anorexia nervosa in children and adolescents. [See the cover article in this issue for more on the Maudsley method.]

CCPR: What about CBT?

Dr. Katzman: Cognitive behavioral therapy is not a treatment that is used in young children with this condition.

CCPR: Many geographic regions do not have access to an eating-disorder specialty inpatient program. Do you think that hospitalization in either a pediatric ward or psychiatric ward that does not specialize in eating disorders is helpful or necessary?

Dr. Katzman: If a child needs to be hospitalized because he or she is medically unstable, then that child should be hospitalized. Pediatricians should be familiar with medical issues associated with eating disorders and if they are not comfortable with treating children with eating disorders, they should feel comfortable to consult an expert who can support them in the treatment. If the child needs an admission for any of the reasons outlined in *The Journal of Adolescent Health's* 2003 Position Paper on Eating Disorders, he or she should be admitted. (See sidebar for a summary of these recommendations.) In an instance where a child is admitted to a general pediatric ward with no eating disorder specialty services, it would be best to medically stabilize the young person and make the necessary arrangements for the child and family to get family-based treatment as an outpatient. Family-based therapy is an outpatient therapy, so if you can get the child medically stable and up to a good weight, then you can begin treatment with the family on an outpatient basis; you don't need to do it on an inpatient basis.

CCPR: So from your perspective hospitalization is just to stabilize and refeed.

Dr. Katzman: Hospitalization can be used in different ways and therefore will depend on the particular clinical situation and facility. Sometimes, a brief hospitalization used for medical stabilization is appropriate. There are other situations where a more lengthy and intensive hospitalization may be necessary. The child and family's eating disorder treatment team is the best group to evaluate and recommend the most appropriate treatment and treatment facility.

CCPR: We talk sometimes with the families about the fact that until the child's weight is reasonably close to their ideal body weight, they really can't think well enough to engage with us.

Dr. Katzman: Weight loss has a great impact across all neurocognitive domains. These kids are fairly resilient and most of them are incredibly bright, so you don't see that in ordinary interactions, but if you were to do neurocognitive testing, what you find is that

they are impaired compared to healthy young people of similar age and background. We have found that both weight restoration and resumption of menstrual function in girls is really important to cognition.

CCPR: Estrogen? Interesting.

Dr. Katzman: That has been shown also in kids with Turner's syndrome or in women who have been oophorectomized. Their cognition is impaired, and so the assumption is that estrogen probably plays an important role in cognition.

CCPR: Do they resume their previous levels when they are re-fed or are there permanent changes?

Dr. Katzman: When they start menstruating and their hypothalamic pituitary axis kicks in, their normal estrogen levels resume. The jury is still out on whether they attain normal neurocognitive functioning, but our data suggest that the return to normal cognitive function is promising.

CCPR: So that is still under research.

Dr. Katzman: Based on my research, I would say that for the most part cognition probably does come back to normal. I think other studies need to be done, especially in kids who are growing and developing.

CCPR: One of the reasons it's so hard to treat patients with eating disorders is that they're unable to engage in therapy.

Dr. Katzman: Yes, many young people with eating disorders don't come to treatment willingly. In fact, often adolescents with eating disorders are unable to recognize the gravity of their disorder. The adolescent may not see their disorder as a problem. The eating behaviors often fit into helping the adolescent feel good about themselves. It is the parents who are able to recognize that there is a problem and therefore bring their child in for treatment. This is why family-based treatment is a very an important and helpful treatment.

CCPR: Are adolescents with eating disorders developmentally delayed?

Dr. Katzman: Many adolescents with eating disorders are socially delayed. Adolescents with eating disorders are often isolated; they spend a lot of time on their own, when they would otherwise be spending time with their peers. As such, they do not spend time learning to make and cultivate relationships. In addition, in adolescents physical growth and development, including puberty, may be delayed. Finally, there also may be psychological delays as a result of having an eating disorder.

CCPR: Are medications helpful in any way?

Dr. Katzman: Treatment guidelines suggest that medication should not be used as the primary treatment of children and adolescents with AN. Generally, medications for AN should be reserved for co-morbid conditions such as anxiety and depression when there is compelling historical evidence that these symptoms preceded the onset of the eating disorder. Medications may be helpful under these circumstances. But, as far as we know right now, there are no studies that indicate that there are useful medications to treat anorexia nervosa itself.

CCPR: What about the atypical antipsychotics?

Dr. Katzman: There are a few descriptive studies describing the use of antipsychotics in children and adolescents with eating disorders. Both improvements in anxiety and weight gain were noted. Atypical antipsychotics are associated with metabolic complications and therefore should be used cautiously.

CCPR: Do you see sleep disturbances in anorexic kids?

Dr. Katzman: Not that I am aware of, but one of the things that we have reported on is that, on refeeding, these kids tend to have nocturnal enuresis, which is really disruptive to their sleep and horribly humiliating (Kanbur N, *Int J Eat Disord* 2011;44(4):349-355).

CCPR: Any other unusual features that you have found?

Dr. Katzman: Yes. As kids are getting nourished and their hypothalamic pituitary axis recovers, they describe flushes. It is like postmenopausal women where all of a sudden they become flushed. They talk about getting really sweaty.

CCPR: Interesting. Thank you, Dr. Katzman.

Indications for Hospitalizing Adolescents with Eating Disorders

When the outpatient treatment of adolescents with eating disorders fails, it often becomes necessary to hospitalize these patients. There are 12 factors that justify inpatient treatment of an adolescent with an eating disorder, according to the Society for Adolescent Medicine. The criteria are in agreement with the recent revision of the American Psychiatric Association practice guidelines for the treatment of patients with eating disorders, the recently published American Academy of Pediatrics policy statement on identifying and treating eating disorders, and the American Dietetic Association position on nutrition intervention in the treatment of eating disorders.

One or more of the following criteria justify hospitalization:

1. Severe malnutrition (weight equal to or less than 75% average body weight for age, sex, and height)
2. Dehydration
3. Electrolyte disturbances (hypokalemia, hyponatremia, hypophosphatemia)
4. Cardiac dysrhythmia
5. Physiological instability
 - Severe bradycardia (heart rate less than 50 beats per minute daytime; less than 45 beats per minute at night)
 - Hypotension (less than 80/50 mm Hg)
 - Hypothermia (body temperature less than 96° F)
 - Orthostatic changes in pulse (greater than 20 beats per minute) or blood pressure (greater than 10 mm Hg)
6. Arrested growth and development
7. Failure of outpatient treatment
8. Acute food refusal
9. Uncontrollable bingeing and purging
10. Acute medical complications of malnutrition (eg, syncope, seizures, cardiac failure, pancreatitis, etc.)
11. Acute psychiatric emergencies (eg, suicidal ideation, acute psychosis)
12. Comorbid diagnosis that interferes with the treatment of the eating disorder (eg, severe depression, obsessive compulsive disorder, severe family dysfunction)

Source: The Society for Adolescent Medicine's position paper "Eating Disorders in Adolescents" (*J Adolescent Health* 2003;33:496-503)



Research Updates IN PSYCHIATRY

ADHD

Do Medications Boost Academic Achievement in Children with ADHD?

Children with ADHD typically have trouble paying attention, and demonstrate hyperactivity and impulsivity. Those symptoms can result in numerous problems including lower academic achievement.

A recent study looked at whether medications used to treat ADHD improve school achievement. Previous studies that examined that question were mixed. In this study, researchers considered the question using structural equation modeling (SEM) techniques, which the authors say are more sophisticated and advanced than traditional regression techniques.

Researchers looked at a sample of 783 children with a diagnosis of ADHD from the Early Childhood Longitudinal Study-Kindergarten (ECLS-K), which

followed children from kindergarten through grade five and provides a large, community-based, nationally representative sample. Approximately 66.9% of the children in the sample took a prescription medicine for treatment of ADHD, while 33.1% did not as of the spring semester of fifth grade. After examining reading and mathematics scores of children with ADHD over time, as well as the duration they were treated with medication, the study found only a statistically insignificant association between ADHD medications and academic achievement. One limitation of the study was the fact that many of the children in the sample had received medication for less than two years, which may not have been an adequate amount of time to see a statistically significant increase in academic achievement, if there were to be one. Researchers also suggested that their findings might be due to review of the children as an aggregate without acknowledging the influence of subtype

symptoms as delineated by DSM-IV. In other words, the study did not look at children who exhibited symptoms of the inattentive, hyperactive-impulsive, and combined subsets versus children who exhibited a lower level of symptoms and were diagnosed with ADHD-not otherwise specified (NOS). The authors cite a second study (Barnard et al, 2010) demonstrating positive correlation between academic achievement and inattentive, hyperactive-impulsive, and combined subtypes of ADHD, but not ADHD-NOS. Therefore, the ADHD-NOS diagnosis may be masking a host of other attention-related disorders that may not respond to medication in the same way (Barnard-Brak L and Brak V, *J Child Adol Psychop* 2011;21(6):597-603).

CCPR's Take: The jury is still out on the effectiveness of medication to improve academic outcomes of patients with ADHD.



Bones and the Blues

less bone density than those who are not. Some studies adjusted for confounders frequently found in depression such as SSRI use and smoking, and others did not. In a prospective sample of adolescent girls, those who had either depression or anxiety were found to have decreased bone density compared to those who did not (Dorn LD et al, *Arch Pediatr Adolesc Med* 2008;162(12):1181-1188).

How Do SSRIs and Depression Affect Bones?

Although there is only limited knowledge about why there might be an impact on bones from SSRIs and/or depression, let's take a look at the mechanisms postulated for each, largely based on animal studies. Back in the cobwebby recesses of the section of your mind devoted to "Things From Medical School Not Used on a Daily Basis," you may recall that, like Lego towers in the hands of a maniacal toddler, bones are continuously modeled

and remodeled. The *osteoclasts* are like Pac-Men that constantly chew up and remove bone, while the *osteoblasts* tirelessly and patiently lay down new bone in its place. This enables the skeleton to meet the changing demands of body weight, activity level, etc.

Whether bone becomes stronger or weaker at any given point primarily depends on which type of cell has more activity at that time. Both of these types of bone cells have serotonin receptors, and although it is difficult to measure directly, SSRIs are thought to preferentially suppress osteoblast activity, letting the osteoclasts get the upper hand. Interestingly, depression also works to suppress osteoblast activity, but by a different mechanism. Depression increases systemic norepinephrine and cortisol levels, which subsequently direct the osteoblasts to take a breather. Because anxiety disorders also increase systemic sympathetic tone and glucocorticoids, we can infer that they would have the same

result—further complicating the study of bone loss with SSRIs used for that indication. In addition, common sense suggests that people with depression are likely to be more sedentary, which also is a risk factor for weaker bones.

So is the bone loss seen with SSRIs attributable more to SSRI use, or to an independent effect of the depression? While it's hard to find a well-designed, placebo-controlled study to answer this question, a review of most of the literature suggests that SSRIs probably do have their own significant effect. This is not entirely cut and dried, though: if SSRIs really did independently cause bone damage, you would expect the bone loss associated with depression to worsen rather than improve during SSRI treatment. In fact, when premenopausal women with depression were studied both before and during SSRI treatment, their rates of bone formation actually increased, and rates of bone breakdown decreased (Aydin H, *J Psychiatr Res*

Continued on page 7

CME Post-Test

CME Notice: The test below is intended to be for **practice only**. All subscribers must take their tests online at www.thecarlatchildreport.com. If you cannot take your test online, please call 866-348-9279 or email info@thecarlatreport.com.

To earn CME or CE credit, you must read the articles and log on to www.TheCarlatChildReport.com to take the post-test. You must answer at least four questions correctly to earn credit. You will be given two attempts to pass the test. Tests must be taken by April 31, 2013. As a subscriber to *CCPR*, you already have a username and password to log on www.TheCarlatChildReport.com. To obtain your username and password, please email info@thecarlatreport.com or call 978-499-0583.

The Clearview CME Institute is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Clearview CME Institute is also approved by the American Psychological Association to sponsor continuing education for psychologists. Clearview CME Institute maintains responsibility for this program and its content. Clearview CME Institute designates this enduring material educational activity for a maximum of one (1) *AMA PRA Category 1 Credit*[™] or 1 CE for psychologists. Physicians or psychologists should claim credit commensurate only with the extent of their participation in the activity.

Below are the questions for this month's CME post test. This page is intended as a study guide. Please complete the test online at www.TheCarlatChildReport.com. Note: Learning objectives are listed on page 1.

- In Phase 1 of family-based treatment for anorexia nervosa, the focus is on which of the following goals (Learning Objective #1)?

<input type="checkbox"/> a. understanding the cause of the patient's refusal to eat	<input type="checkbox"/> b. examining sibling relationships in the family
<input type="checkbox"/> c. providing therapy to the parents	<input type="checkbox"/> d. helping the parent(s) to renourish the child
- Family-based therapy for eating disorders is most often which of the following (LO #1)?

<input type="checkbox"/> a. An inpatient treatment	<input type="checkbox"/> b. An outpatient treatment
--	---
- Most studies that have looked at the connection between depression and osteopenia have come to what conclusion (LO #2)?

<input type="checkbox"/> a. no difference between depressed adults and those who are not	<input type="checkbox"/> b. depressed adults have about 5% to 15% less bone density
<input type="checkbox"/> c. depressed adults have about 35% less bone density	<input type="checkbox"/> d. depressed adults, in fact, have greater bone density
- A 2011 study by Pinhas et al on early-onset restrictive eating disorders in children aged five to 12 years, found what percentage of patients required hospital admission (LO #3)?

<input type="checkbox"/> a. 15.5%	<input type="checkbox"/> b. 33.3%	<input type="checkbox"/> c. 47.2%	<input type="checkbox"/> d. 68.4%
-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------
- The 2011 Barnard-Brak L and Brak V study on ADHD and academics found a statistically insignificant association between ADHD medications and improved academic achievement (LO #4).

<input type="checkbox"/> a. True	<input type="checkbox"/> b. False
----------------------------------	-----------------------------------

PLEASE NOTE: WE CAN AWARD CME CREDIT ONLY TO PAID SUBSCRIBERS

Bones and the Blues

Continued from page 6

2001;45(10):1316–1320).

But what does this mean in the real world? Even if there is a decrease in bone density, will it have any clinical impact on our patients? It's hard to tell. There have been a few case reports of adolescents on SSRIs with fractures, but it's hard to know if they would have gotten those fractures anyway without an SSRI. The growth retardation study mentioned previously was very small. To date, we were unable to find any reliable studies on whether SSRI use in children translates into actual clinical bone impairment either during childhood or far down the line.

What About Kids With Eating Disorders?

Kids with eating disorders already are at risk for significant osteoporosis. The osteoporosis associated with anorexia nervosa tends not to reverse after refeeding. This may be because it is already too late: one of the biggest contributors to osteoporosis later in life is a lack of adequate bone density built up years earlier during adolescence. Thus, it is of paramount importance to address anorexia as early as possible during adolescence. Returning the patient to a normal weight and menstrual status are the most effective interventions to mitigate

the risk. The good news is that anorexic eating patterns that occur for less than 12 months do not seem to have lasting effects on bones (Mehler PS, *Int J Eat Disord* 2003;33(2):113–126).

Where Do We Go from Here?

Some clinicians are starting to suggest that there should be guidelines for periodic bone density screening in older adults taking SSRIs. Bone density scans also are recommended for anorexic patients whether or not they are taking SSRIs. Perhaps, as more is known, this will be warranted in our non-anorexic

Continued on page 8

pediatric patients as well. For now, though, patients and families should be informed that while bone weakness is a potential side effect of SSRI treatment, it is not known at this time to cause clinically important sequelae for children and adolescents, although there are many unanswered questions in this area.

In any case, it's not necessary to restrict physical activity to avoid fractures. In fact, physical activity is important not only for alleviating depression, but for improving bone strength as well. Even in anorexic patients, moderate exercise—but no more than that—was shown to help increase bone mass.

What patients and their families can and should do is pay particular care to doing other things that will help their bone health: beyond staying active, they also should keep a healthy diet and weight and avoid smoking. Because increased dietary calcium and vitamin D yield improvements in the bone density of children and adolescents (Chan GM et al, *J Pediatr* 1995;126(4):551–556; and Bonjour JP et al, *J Clin Invest* 1997;99(6):1287–1294) a supplement might be a smart idea as well.

CCPR'S VERDICT: Be aware that SSRIs may further increase the risk of osteoporosis in anorexic patients and may affect the bones of non-anorexic patients as well. Encourage healthy weight and calcium rich diets, and no one gets excused from gym class quite yet.

- Yes! I would like to try *The Carlat Child Psychiatry Report* for \$129 for one year. I may cancel my subscription at any time for a full refund if not completely satisfied.
- Enclosed is my check made payable to *Carlat Publishing LLC*

Please charge my

- Visa MasterCard Amex

Card # _____ Exp. Date _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Email (required) _____

Please mail payment to:

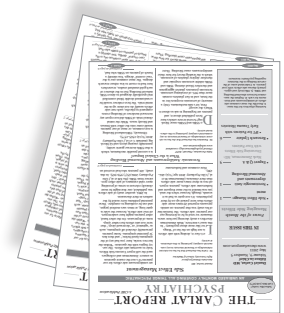
The Carlat Child Psychiatry Report,
P.O. Box 626, Newburyport, MA 01950

Or call toll-free 866-348-9279 or fax to 978-499-2278

Next Time in *The Carlat Child Psychiatry Report*: Rating Scales and Diagnostic Issues

This Issue's Focus:
Eating Disorders

TCPR offers all of the same great features as CCPR, with a focus on adult psychiatry.
One year: \$109
Two years: \$209
To subscribe, visit www.thecarlatreport.com



Subscribe to our companion newsletter, *The Carlat Psychiatry Report*

P.O. Box 626
Newburyport, MA 01950

THE CARLAT REPORT: CHILD PSYCHIATRY

PRSRST STD
US Postage
PAID
Nashville, TN
Permit 989