

# EATING DISORDERS REVIEW®

Current Clinical Information for the Professional Treating Eating Disorders



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## UPDATE

### Anxiety Disorders in Children May Foretell Eating Disorders

Early-onset anxiety disorders (AD) in children may increase the risk that they will develop an eating disorder, according to results from the Price Foundation genetic collaborative studies. Among 673 subjects diagnosed with eating disorders, 428 were diagnosed with at least one anxiety disorder during their lifetime. The most common anxiety disorder in this group was obsessive-compulsive disorder (OCD), which occurred in about 40% of subjects. After OCD, the next most common AD was social phobia (20%). Rates for posttraumatic stress disorder (PTSD), panic disorder, generalized anxiety disorder and agoraphobia ranged from 2% to 4%.

When patients were asked to estimate the age at which their anxiety disorder and eating disorder first appeared, to determine the order of onset, the researchers learned that OCD, social phobia, a specific phobia, or generalized anxiety disorder preceded the eating disorder in most patients. In contrast, PTSD and panic disorder more commonly occurred after the onset of an eating disorder. Dr. Walter H. Kaye and colleagues reported the results at the Eating Disorders Research Society meeting last November in Charleston, SC.

## Anorexia Nervosa: 11 Areas of Advancement

By Arnold E. Andersen, MD

University of Iowa School of Medicine • Iowa City, Iowa

Although the origin, treatment, course, and outlook of anorexia nervosa (AN) have remained a puzzle, advances in at least 11 areas have helped us better understand this disease.

### 1: Genetic Links

Important multicenter studies on the genetics of anorexia nervosa are underway to compare vulnerable patients with their siblings and parents, and to sort out clusters of genes that increase vulnerability to anorexia nervosa. Unlike Huntington's disease, for example, the genetics of AN do not determine whether one gets the disease. However, genetics probably do provide a crucial predisposition to AN through abnormalities of serotonin and metabolism and their effects on personality, reactivity, perseverance, and perhaps weight control, hunger, and satiety.

### 2: The Brain as a Mirror

The brain is clearly affected structurally and functionally as a consequence of AN. Several studies have confirmed the significant effects of self-starvation on the brain. With starvation, the ventricles of the brain increase in size and the cortical mass decreases.

One matter of concern is the fact that there is improvement, but not complete normalization, of gray and white matter as long as 6 to 12 months after weight restoration. The very powerful imaging tools of functional MRI and PET scans are demonstrating a change in the in-

teraction between the prefrontal cortex and components of the limbic system in regard to the sensing and perpetuation of emotional distress in active AN. These tools will not only demonstrate the effects of eating disorders but will also document the relative benefits of a variety of treatments.

### 3: Critical Diagnostic Criteria

In another development, diagnostic criteria for anorexia are being reviewed with a goal of sorting out the critical features and introducing more flexibility for traditional but perhaps out-of-date criteria. Including amenorrhea as a criterion for AN is less useful than noting abnormalities of reproductive hormone function in general. Broader recognition of medical consequences of starvation not limited to levels of reproductive hormones is even more useful. The key concept here is that AN involves self-starvation to a substantial degree below the individual's usual or healthy weight. Some people may be semi-starved even if their hormone levels are normal and they are at their normal weight. This means that amenorrhea is not as important as are general measures of self-starvation, and that a final lowest weight of 85% of normal healthy weight is not as crucial as is a significant decline in weight from an initial healthy weight.

### 4: Men Develop AN, Too

A recent large epidemiologic study has substantiated that males are probably underrepresented in both epidemiologic

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and clinical studies. While earlier studies reported ratios of as many as 10 females to 1 male, a ratio of one male to three or four females may be more accurate. This raises concerns that males are underrepresented in clinical programs, and calls for better understanding of the factors that may be keeping them from seeking treatment.

### 5: Axis I Comorbidities

The recognition that AN usually has associated comorbidities on Axis I or II has been confirmed with awareness that AN seldom presents by itself but there is a high probability of Axis I diagnoses, including comorbid depression, anxiety, and substance use disorders. On Axis II, there is an overrepresentation of cluster C for restricting AN and a mixture of clusters B and C for AN binge-purge subtype. Recent studies from Denmark have highlighted the especially deadly combination of AN with insulin-dependent diabetes mellitus in young individuals. These studies spell out an approximately tenfold increase in mortality with this combination, compared to having either of these disorders alone.

### 6: The Rise of Neuroleptics

A number of trials are underway using atypical neuroleptics such as risperidone and olanzapine. The hope is that they will have an effect on the core psychopathology of AN rather than merely stimulating weight gain, as was the case with chlorpromazine in the 1960s.

### 7: An Excellent Outcome May Be Possible for Many

Although AN is often considered a chronic disorder with a poor prognosis, in fact the duration of AN is quite variable, and more than 75% of patients will have an excellent outcome. This is especially true for adolescent anorexics who are treated comprehensively to full weight restoration with associated cognitive behavioral psychotherapy, and then followed up carefully. A 10-year follow-up study at UCLA documented complete improvement with absence of any diagnostic features for any eating disorder in 76% of patients.

### 8: Insurance Limitations

Despite improvements in outcome

with modern treatment modalities, many patients cannot get access to treatment because of irrational insurance limitations. Decreasing length of hospital stays, an increasingly common occurrence with restrictive and irrational insurance limitations, is leading to more frequent relapse and less sustained improvement. Groups such as the Eating Disorders Coalition have been working to change this.

### 9: Arguments Over Effectiveness of Prevention Efforts

Controversy exists between clinicians, between treatment centers, and between countries on the possible effectiveness of preventive efforts in AN. Several studies are now suggesting there is a decrease in the prevalence or severity of AN in vulnerable individuals when pressure to lose and maintain an abnormal body weight is removed. For example, there is evidence that the number of cases of eating disorders declines when a strict ballet school refuses to let a dancer participate below a certain weight or when a collegiate wrestler is barred from participating below a certain percent body fat or absolute weight.

The more adventurous approach toward empowering young people with media skepticism, with assertiveness, and with improved body image has not yet been tried on a broad-enough population to comment on its effectiveness. But the approach to "inoculating" the vulnerable subgroup of young people with techniques to make their way through a society obsessed with thinness merits continued work.

### 10: A Disease That Stands on its Own

There has been some attempt to subsume AN into other diagnostic categories, such as obsessive-compulsive disorder (OCD), major depression, or psychosis. In fact, AN "breeds true," with evidence that the core syndrome has not changed in hundreds of years. There is ongoing discussion about the presentation in different cultures in regard to the content of the core psychopathology.

There is support for the concept that overvalued beliefs are part of the core psychopathology of AN, and that the overvalued beliefs vary from culture to culture. For example, in the West, we

overvalue thinness. To further clarify this, overvalued beliefs are defined as culturally normative beliefs that have been assigned disproportionate values in a particular individual and that demonstrate that individual's thinking, emotional life, and behavior. Nor are they the type of ego dystonic thoughts or behaviors required for obsessive-compulsive disorders. Although overvalued beliefs are not abnormal themselves, what is abnormal is the excessive value assigned to them.

This diagnostic criterion is less frequently used than it should be and helps to differentiate the AN psychopathology from OCD or psychosis and also explains some of the chronicity of the disease. It also offers hope for change through stopping the abnormal behavior and challenging the core overvalued belief with cognitive behavioral techniques.

### 11. Family Therapy

There's exciting evidence that the families of young anorexics may be able to be empowered through teaching techniques to keep the patient from ever being hospitalized, even when very starved, when parents practice a stepwise approach toward changing the self-starvation with caring but firm techniques.

## Disordered Eating During Adolescence Predicts Later Health Problems

Problems with eating or weight during adolescence may lead to a higher-than-normal risk of health problems later in life, according to physicians at Columbia University. Adolescents from two counties in New York, first interviewed at a mean age of 13.8 years, then followed up after 5 to 8 years, had increased incidences of anxiety disorder, cardiovascular symptoms, chronic fatigue, chronic pain, and other disorders. Those with eating disorders had increased incidences of infectious diseases, insomnia, and neurologic symptoms. A higher-than-expected number had attempted suicide as young adults. Only 22% of the adolescents diagnosed with eating disorders had received prior psychotherapy (*Arch Gen Psychiatry* 2002;59:545).

## Recent Research in Bulimia Nervosa

By James E. Mitchell, MD  
University of North Dakota • Fargo, ND

Studies presented or published last year have shed some additional light on the problem of bulimia nervosa descriptively, etiologically, and in terms of treatment.

Several recent reports have focused on neurobiological abnormalities found in patients with bulimia nervosa. These include evidence of elevated fasting plasma ghrelin levels and decreases in circulating leptin in patients with bulimia nervosa by both Tanaka and colleagues from Kagoshima University and by Monteleone and colleagues at the University of Naples. These findings suggest that not only body mass index (BMI) but abnormal eating behaviors with habitual binge-eating/purging may have some effect on circulating ghrelin levels in BN. Monteleone and coworkers also reported decreases in circulating leptin levels in patients with BN. Ghrelin is a peptide that stimulates feeding and leptin is a peptide that suppresses it.

Geliebter and colleagues at Columbia University reported increased gastric capacity in patients with bulimia nervosa compared to controls, which may contribute to their impaired sense of satiety.

### Genetic Studies

Several studies have focused on genetics. Ricca and colleagues from the University of Florence published a report suggesting an association of bulimia nervosa with specific serotonin receptors and a 5HT2A receptor gene polymorphism. The Price Foundation Research Group reported a significant linkage signal on chromosome 10p in families of patients with bulimia nervosa. These results provide evidence of the presence of susceptibility locus for BN on chromosome 10p. Data on individuals with bulimia nervosa and energy expenditure were summarized in a report by de Zwaan and colleagues. A report by Fetissov and colleagues from the Karolinska Institute concerned the presence in plasma of antibodies to alpha-melanocyte-stimulating hormone (αMSH) and adrenocorticotrophic hormone, suggesting the possibility that these antibodies might interfere with normal signal transduction

in these circuits. These data show evidence that a significant subpopulation of AN and BN patients may have autoantibodies to αMSH or adrenocorticotrophic hormone, a finding pointing to involvement of the stress axis.

### Self-Harm

Brewerton, from the Medical University of South Carolina, published an excellent review on bulimia in children and adolescents. Several articles contributed to a growing literature documenting high rates of self-harm and substance abuse among women with eating disorders, particularly those who have been sexually or physically abused. Using a long-term follow-up study, Crow and colleagues from the University of Minnesota found there was little impact on the later ability to achieve pregnancy in women who had previously had bulimia nervosa, despite common menstrual abnormalities at baseline.

### Treatment

Romano and colleagues described the results of a multi-center relapse prevention trial in patients with bulimia nervosa treated with fluoxetine, demonstrating that this agent helps prevent relapse, although the drop-out rate in the trial was substantial. A report by Keel and colleagues from Boston substantiated that women with more severe bulimia nervosa were more likely to seek treatment. Wilson and colleagues of the multi-center cognitive behavioral therapy (CBT) vs. interpersonal psychotherapy (IPT) trial examined possible mediators of change with CBT. A reduction in dietary restraint as early as the fourth week of treatment mediated post-treatment improvement in both binge eating and vomiting frequency. CBT also had a significantly more rapid treatment effect than IPT, with 62% of post treatment improvement present by week 6. Another study examined response to medication or IPT in CBT non-responders, and found the dropout rates were high and response rates were low among patients assigned to a second course of

treatment, suggesting that sequential treatment approaches may not be useful. A review of the literature by Bell suggests that borderline symptoms severity or cluster B personality disorders can impair response to treatment.

Finally, a positive trial using topiramate for bulimia nervosa was presented at the Eating Disorder Research Society Meeting, by Hoopes and colleagues.

### Suggested Reading

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Monteleone P, Fabrazzo M, Tortorella A, et al. Opposite modifications in circulating leptin and soluble leptin receptor across the eating disorder spectrum. *Mol Psychiatry* 2002;7:641-6.

Ramano SJ, Halmi KA, Sarkar NP, Koke SC, Lee JS. A placebo-controlled study of fluoxetine in continued treatment of bulimia nervosa after successful acute fluoxetine treatment. *Am J Psychiatry* 2002;159:96-102.

Wilson GT, Fairburn CC, Agras WS, Walsh BT, Kraemer H. Cognitive-behavioral therapy for bulimia nervosa: time course and mechanisms of change. *J Consult Clin Psychol* 2002;70:267-74.

## When Mothers Encourage Teens to Diet

Social influences, such as media, peer group, and family pressures, have a particularly potent impact during adolescence. Mothers' attitudes toward dieting and weight can influence their teenage daughters and, according to a recent study, they can also lead to unhealthy attitudes toward weight and unhealthy weight-control methods among their teenage sons.

At the University of Minnesota, mothers' dieting was linked to weight-related concerns and behaviors among their teenage daughters, but these effects were even greater among their sons. When mothers encouraged their sons to diet, the result was binge eating, dieting, and other weight control behaviors, independent of the sons' relative body weight (*Int J Obesity* 2002; 26:1579).

### Study design

An ethnically diverse group of teens (381 boys and 429 girls) answered a questionnaire and then were interviewed by telephone. Their mothers were also interviewed. The study involved mothers, but not fathers, because mothers generally have more influence on their children's eating behaviors.

The mothers were asked about their current weight and height and how often they dieted to lose weight or to keep from gaining weight, and how satisfied they were with their own body weight. Finally, the mothers were also asked to describe their teens' current weight (very underweight to very overweight) and the extent to which they encouraged their sons and daughters to control or lose weight.

### Boys: prone to diet and binge

The most striking finding of the study was the degree of weight loss behaviors among the teenage boys whose mothers encouraged them to diet. Boys who were encouraged to diet were twice as likely as boys who were not encouraged to diet

to worry about weight gain, two to three times more likely to diet, seven times more likely to binge eat and two to three times more likely to use healthy and unhealthy techniques to try to lose weight.

The findings for girls differed from much of the research to date, according to the authors. In the current study, there was only one difference between girls who were or were not encouraged to diet—caring about controlling weight.

**In this study, the mothers' words seemed more powerful than their actions. Negative comments about their children's attributes, not the mothers' dieting behavior, had the greatest impact upon development of disordered eating.**

### Words: even more powerful than actions?

It may be that what the mother says, not does, influences her children's weight-related concerns. Modeling the mother's dieting behaviors may not necessarily increase the chances that her teenagers will diet, especially if the teens' relative body weights are taken into account. Thus, a mother's own dieting behaviors may have less influence on her teen's behavior than her direct verbal statements about the child's attributes.

Mothers who encouraged their teens to diet were significantly heavier than mothers who did not encourage their children to diet. Almost half of the girls and the boys who were encouraged to diet by their mothers were not classified as overweight—however, about half of the mothers were considered overweight or obese. The authors theorize that overweight mothers were worried about their child's weight because of their own experiences with weight control.

The authors think that parents who are concerned about their children's weight should be educated about encouraging healthy eating habits and regular exercise to promote health, including healthy weight control. The children who were encouraged to diet did report using more healthy means to lose weight, but they also reported more restrictive eating than the children whose mothers placed no emphasis on diet or weight loss.

## Bulimic Symptoms During Pregnancy

It's one of the many mysteries of bulimia nervosa—why symptoms improve during pregnancy but return or even worsen during the postpartum period. In one study of 94 women, Morgan and colleagues found that pregnancy alleviated a sense of responsibility for body weight and shape. Other studies have shown that changes in taste and smell and changes in satiety associated with altered leptin levels may affect feeding behavior (*Psychosom Med* 1992; 54:665).

### A case where symptoms worsened during pregnancy

For some women, symptoms worsen during pregnancy. A recent case of a ballet dancer with bulimia nervosa provided some clues to psychological factors that may have contributed to her increasingly disordered eating during pregnancy (*Psychosomatics* 2003;44:76).

The 37-year-old dancer had a dramatic worsening of eating problems during the first trimester of her third pregnancy—she reported up to 10 episodes of binge eating and vomiting weekly before pregnancy, and exercised excessively three times a week. When she was admitted to the hospital in the 20<sup>th</sup> week of gestation, her binge eating and vomiting had increased to more than 30 episodes per week, and she had begun exercising and jogging daily for at least 2 hours. She had extensive dental caries and iron deficiency anemia.

### Behind the scenes

The dancer's eating disorder had started when she was 17 and planning to become a dancer—once she began her dancing studies, the desire to become thin had increased to a point where she reported up to 10 binge eating and vomiting episodes a week. During her first two pregnancies, however, she completely stopped binge eating and vomiting.

She reluctantly became pregnant for a third time, after her husband convinced her that this would stabilize their marriage. When a sonogram showed a possible malformation of her fetus, she became overwhelmed with feeling of fear

### *Eating Disorders: A Clinical Guide to Counseling and Treatment*

(By Monika Woolsey, MS, RD. Chicago, Illinois: American Dietetic Association; 2002. 378 pp; \$55 for non-members of the ADA.)

Monika Woolsey, a registered dietitian with extensive experience treating patients with eating disorders, has edited and largely authored a welcome book for the field. She has personally written the first and second sections dealing with the biology and psychological aspects of eating disorders. For the third section, which deals with diagnosis and treatment planning, she has also called upon several well-qualified collaborators to join her in offering what are largely well-written and informative chapters.

The introductory sections are highly readable and are illustrated with helpful diagrams. The first sections cover diagnosis (DMS-IV) and the neuroendocrine basis of eating disorders, including descriptions of hypothalamic and pituitary function. These sections give readers an easy-to-understand grasp of the physiology involved. From a biological perspective, Woolsey covers basic neurohormones, depression, gastrointestinal influences on feeding, and eating-related neurotransmitters. In the psychological section she offers a fine overview of development and learning as they pertain to eating disorders issues. Many boxed case studies, tables, and summaries aid the learner.

Several highlights and notable features should be underscored. I found the discussion of specific nutritional concerns and interventions associated with the major psychiatric Axis I diagnoses to be well laid out and helpful. A chapter describing various screening instruments for detection and monitoring is helpful, although some illustrative items for each of the scales may have provided readers with a more practical understanding of what these scales entail.

and guilt and was afraid she couldn't cope. At some level within or outside of her awareness, one might also imagine that she may have been attempting to induce a spontaneous abortion.

### Comment

The authors note that even more important than understanding improvement of bulimic symptoms during

Woolsey's chapter on nutrition and nervous system functioning is well done. Readers will especially value Diane Keddy's review of outpatient nutrition therapy, which covers all aspects of practical office matters, psychosocial interactions, and clinical treatment planning. The sections on counseling/therapy, and Woolsey's summary chapter on professional development and the achievement of proficiencies in this field are excellent. The book concludes with a helpful list of resources for practitioners and patients.

However, while many important bases are covered, some, disappointingly, are not. In the biological sections, for example, I was disappointed to see no mention of leptin or melanocortin mechanisms related to eating and weight regulation, nor any discussion of the rich contemporary literature concerning genetic contributions to weight, activity and eating disorders per se. The nice chapter on family dynamics provides a useful overview, but some of the major current writers and ideas regarding family issues in eating disorders are not represented. A chapter by Kratina on "sexual abuse, dissociative disorders, and the eating disorders: Nutrition therapy as a healing tool" is helpful insofar as it goes, but this chapter misses the point that overall physical and psychological abuse are often more prominent and more important in contributing to trauma experiences in eating disorder patients than sexual abuse alone. Similarly, while the chapter on personality disorders lays out the basic clinical features in a straightforward manner, readers might have appreciated specific clinical hints as to how to work with and approach eating disordered patients with the various types of personality disorders.

I suspect that all RDs working with eating disorders patients will want to own this book, and that the volume will serve as a basic text for courses and seminars, which will need some supplementation, for teaching.

—J.Y.

pregnancy is the need for insight into the reasons for lack of improvement or even worsening of symptoms that can occur during pregnancy. This information is crucial not only because of the health risks to the fetus and mother but because bulimic patients seem to have a higher risk of affective disorders, including postpartum depression, after delivery.

# Barriers to Treatment for Mexican-American Women

Cultural barriers may keep some Mexican-American women with eating disorders from receiving adequate treatment, according to researchers at California State University, Los Angeles, and Wesleyan University, Middletown, CT.

Fary M. Cachelin, PhD and colleagues concluded this after studying a group of 47 women, including 22 Mexican-American women and 25 European-American (white) women with clinical eating disorders, who had been recruited from the community. Diagnoses were established with the Eating Disorders Examination (EDE) and the Structured Clinical Interview for DSM (SCID). Only 43% of the group reported seeking treatment for eating disorders.

Mexican-American women and non-Hispanic women were equally likely to feel they had a significant eating problem and to want help for it. However, there were several major differences between the two groups. Mexican-American women were much less likely to seek treatment for their eating disorder (32% vs. 50%, respectively).

Among those who sought treatment, Mexican-American women were less likely than non-Hispanic women to have received a diagnosis (14% vs. 67%, respectively) and were also less likely to have been treated for their eating disorder (28.5% vs. 75.0%, respectively). Non-Hispanic women were more likely to have received individual psychotherapy from mental health practitioners, while Mexican-American women mostly visited general practitioners. The non-Hispanic women also were more likely than the Mexican-American women to have sought nonprofessional treatment for their eating disorder, such as from self-help groups like Overeaters Anonymous (83% of non-Hispanic women vs. 29% of Mexican-American women).

## Why some women didn't seek treatment

Information about the women who didn't seek treatment was also intriguing. Most Mexican-American women who hadn't sought treatment said they: (1) did not know where to find treatment, and/or (2) were ashamed to ad-

mit they had disordered eating. Non-Hispanic women who didn't seek treatment: (1) didn't think their problems were serious enough, and (2) believed they should be able to help themselves. Mexican women were most likely to turn to other sources, such as family and friends, for help.

The authors, who presented their study at the Eating Disorders Research Society meeting in Charleston, SC, called for better outreach efforts to help Mexican-American women with eating disorders get the treatment they need.

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## CBT for Bulimia Nervosa: Temperament and Outcome

About two-thirds of patients who complete courses of cognitive behavioral therapy (CBT) report noticeably improved symptoms. Until recently, less was known about how CBT affects temperament and character.

The ability to identify certain characteristics of individual patients that might predict treatment outcome could influence the choice of treatment and help predict its effectiveness. Since personality characteristics can change during treatment, they might also be especially valuable as measures of treatment effectiveness and indicators of therapeutic change, according to researchers at Virginia Commonwealth University, Richmond, VA, and Christchurch School of Medicine, Christchurch, New Zealand (*Comprehensive Psychiatry* 2002;43:182).

### A personality trait that suggests better outcome

One of the Virginia researchers, Dr. Charles B. Anderson, noted that in the current study and earlier studies, the personality trait of "self-directedness" was positively affected by CBT. This characteristic is measured by the Temperament and Character Inventory (TCI) and is defined as a developmental process that includes acceptance of responsibility for one's choices, identification of individually valued goals and purposes, resourcefulness, and self-acceptance

The authors' study involved a random-

ized clinical trial of 135 women, 17 to 45 years of age, with a current DSM-III-R diagnosis of BN. The study was designed to examine the additive effects of two forms of exposure with pre-response prevention to a core of CBT for treatment of BN. Trained clinical psychologists used a manual for the sessions. The treatment course included self-monitoring, psychoeducation, identification of cues, challenging automatic thoughts, thought restructuring, chaining (learning related behaviors in which each response acts as a stimulus for the next response), and relapse prevention. Specific goals were outlined for each session clearly in the manuals and homework was assigned for each module. For the first 2 weeks, sessions were held twice a week, then weekly for 4 more weeks.

After this, participants were randomized to one of three groups: exposure with response prevention to pre-binge cues; exposure with response prevention to pre-purge cues; or relaxation training (controls). After the last treatment session, all the women underwent final post-treatment assessment with one of the principal investigators who were blinded to the treatment condition. The women were assessed with the same structured interview for bulimia nervosa as on admission, and were also evaluated with the Hamilton Depression Rating Scale and a semistructured measurement of bulimic symptoms.

There were no significant differences reported across the three behavioral treatments as to percentage of persons abstinent from bingeing or purging or mean frequency of bingeing and purging at the end of treatment.

### Status after one year

Scores of self-directedness not only predicted treatment outcome for patients with BN but overall self-directedness was improved with CBT in women with BN. The results of the study also indicated that the efficacy of CBT was particularly "robust," considering that 8 sessions of CBT plus 8 sessions of exposure or relaxation training appeared to have produced a significant change in self-directedness. Thus, the authors believe that the portions of CBT that affect self-directedness may hold promise for enhancing treatment of BN.

# Daily Monitoring Can Reduce Risk of the Refeeding Syndrome

One of the hazards for patients with anorexia nervosa who are hospitalized for refeeding is the “refeeding syndrome,” which involves fluid and electrolyte abnormalities, including low serum phosphorus levels (hypophosphatemia). Severe hypophosphatemia can lead to cardiac dysrhythmias, delirium, and even sudden death.

According to Rollyn M. Ornstein, MD and colleagues at Schneider Children’s Hospital, New Hyde Park, NY, serum phosphorus levels are at their lowest point during the first week of refeeding (*J Adolesc Health* 2003;32:83). Because of this, it’s essential to monitor serum phosphorus levels every day, particularly when the patient is severely malnourished. According to the authors, close monitoring, with supplementation when needed, will help avoid the refeeding syndrome.

## Pressure for shorter hospitalization

Because many of the medical complications of AN can be reversed with nutritional rehabilitation, in some managed-care settings there is pressure to increase the rate of refeeding to shorten the length of hospitalization. At the authors’ hospital, the amount of weight that patients contract to gain every 4 days has risen over the last 7 years from 1.2 lb to 1.6 lb, and the group noticed that the instances of refeeding syndrome seemed to be increasing. When they reviewed the charts of 69 patients with anorexia nervosa (66 females and 3 males) consecutively admitted between July 1, 1998 and June 30, 2000, they found that 4 patients (5.8%) had developed moderate hypophosphatemia (<2.5 and  $\geq$ 1.0 mg/dl) and 15 (21.7%) had developed mild hypophosphatemia (<3.0 and  $\geq$ 2.5 mg/dl). The 69 patients were started on 1200 to 1400 kcal/day, and calories were increased by 200 kcal every 24-48 hours.

Those who developed moderate hypophosphatemia were significantly more malnourished than those who did not develop it, and the low points of phosphorus were directly proportional to percentage of ideal body weight. More than 75% of patients reached their lowest se-

rum phosphorus levels within the first week of hospitalization. Overall, 27.5% of patients required phosphorus supplementation.

According to Dr. Ornstein and colleagues, the incidence of hypophosphatemia appears to be related to the rate of refeeding, and seems particularly linked to increased intake of carbohydrate. The abrupt shift to glucose metabolism that occurs during refeeding is accompanied by greater requirements for and utilization of phosphorus-containing intermediates, such as adenosine 5’ triphosphate (ATP). In malnutrition, atrophy of cardiac muscle, as well as electrocardiographic abnormalities, most often sinus bradycardia, occur. The heart thus becomes more vulnerable to the effects of phosphate depletion, leading to ventricular dysrhythmias.

Although some authors advocate phosphorus supplements before and during refeeding, Ornstein and colleagues were able to help patients avoid the refeeding syndrome by monitoring phosphorus and aggressively using phosphorus supplements as needed.

## Topiramate: Efficacy for Obese Patients with BED

When it was learned that a common side effect of the antiepileptic agent topiramate was weight loss, the drug quickly became of interest to eating disorders researchers. Some studies have suggested that this drug might be especially useful for obese patients with binge eating disorder (BED). In one recent controlled study, this drug was effective and relatively well tolerated by patients with BED (*Am J Psychiatry* 2003;160:255).

Dr. Susan L. McElroy and colleagues at the University of Cincinnati College of Medicine tested topiramate in 61 outpatients with BED who had a mean body mass index (BMI) of at least 30 (kg/m<sup>2</sup>). One group (30 patients) received topiramate and the second (31 patients) received a placebo.

The group who received topiramate had a significantly greater reduction in

frequency of binge eating, binge day frequency, BMI, body weight, and scores on the Clinical Global Impression severity scale and the Yale-Brown Obsessive-Compulsive scale, which was modified for binge eating. In the topiramate group, binge frequency was reduced by 94%, compared to 46% in the placebo group. The mean weight loss for subjects treated with topiramate was 5.9 kg, or 12.9 lb. The median dose for topiramate was 212 mg/day, and dosages ranged from 50 kg to 600 kg.

## Adverse effects

Nine patients, including 3 in the placebo group and 6 in the topiramate group, withdrew from the study because of adverse effects. (One common side effect is confusion [“word finding”], which is why the drug has been nicknamed “Dopamax.”) In this study, the most common reasons for discontinuing the drug were headache (3 persons) and paresthesias (2 persons).

## AN Patients: A Symptom That Might Be Overlooked

Physicians treating patients with anorexia nervosa (AN) face a wall of symptoms, many of which are serious and even life-threatening. AN produces one of the highest mortality rates among psychiatric conditions, but potential predictors of mortality, such as comorbid psychiatric illnesses, remain unclear. A recent study turned up what might be an unexpected source of illness tied to mortality among a group of anorexic women participating in a prospective longitudinal study (*Arch Gen Psych* 2003;60:179).

Pamela Keel, MD and colleagues at Harvard University found a high rate of alcoholism among a group of women with either DSM-IV anorexia nervosa (136) or bulimia nervosa (110) followed between January 1, 1987, and December 31, 1991. In fact, one of the predictors of mortality among anorexics in the study was severe undiagnosed alcoholism.

The authors suggest that physicians treating patients with anorexia nervosa carefully assess patterns of alcohol use during the course of care. One-third of the women in their study who had alcoholism and died had no history of alcohol use at intake.

## QUESTIONS & ANSWERS

### Perfectionism and Personality

**Q** I know that "perfectionism" has been closely associated with eating disorders in several studies, but I'm also aware that this trait can refer to many different qualities in different people. Are any particular features of perfectionism and associated personality features most strongly linked to eating disorders? (JA, Philadelphia)

**A** In recent years, perfectionism has received considerable attention, both from the psychological and the biological perspective, and researchers have been studying this trait in relation to eating disorders developmentally and genetically. A recent study from London by Anderluh and co-workers showed that various childhood obsessive-compulsive characteristics contributed significantly to the odds of developing an eating disorder. The risk of developing a

disorder increased almost seven times for each of the features that were present (*Am J Psychiatry* 160:242, 2003). Their way of thinking about perfectionism and associated features offers a useful framework. The specific childhood features linked to subsequent eating disorders included perfectionism and rigidity in particular. Perfectionism was ascertained in relation to behaviors present in at least two specific life domains such as schoolwork, self-care (grooming), looking after her room, hobbies, caring for pets, part-time job or housework. Rigidity was measured by inflexibility in adjusting to moves and changes, and by being rule-bound in areas such as planning, persistence, and complying with rules set out by parents and teachers. Less important but still notable, excessive doubt and cautiousness and a drive for order and symmetry were also associated with the subsequent development of eating disorders. Asking about these characteristics individually will most likely increase patients' abilities to better describe their pre-eating disorder traits.

—J.Y.

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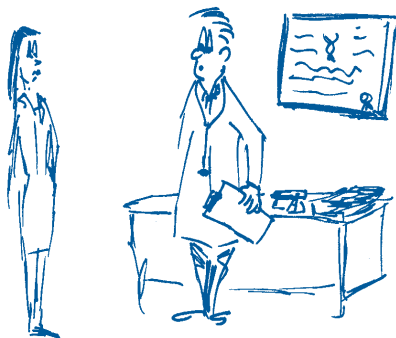
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### Nibbles by Hunter



"We're recommending a fat transplant."

### IN THE NEXT ISSUE

#### Eating Disorders and Self-Harm Behavior: A Chaotic Intersection

Randy A. Sansone, MD, John L. Levitt, PhD, and Lori A. Sansone, MD

There is clear empirical evidence that a subgroup of individuals with eating disorders engage in self-harm behavior. There is no consistent, empirically proven treatment strategy for these patients. However, a variety of interventions, used in assorted combinations, appear to offer promise.

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