Conferences and Reviews

Eating Disorders
A Review and Update

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Anorexia nervosa and bulimia nervosa are prevalent illnesses affecting between 1% and 10% of adolescent and college age women. Developmental, family dynamic, and biologic factors are all important in the cause of this disorder. Anorexia nervosa is diagnosed when a person refuses to maintain his or her body weight over a minimal normal weight for age and height, such as 15% below that expected, has an intense fear of gaining weight, has a disturbed body image, and, in women, has primary or secondary amenorrhea. A diagnosis of bulimia nervosa is made when a person has recurrent episodes of binge eating, a feeling of lack of control over behavior during binges, regular use of self-induced vomiting, laxatives, diuretics, strict dieting, or vigorous exercise to prevent weight gain, a minimum of 2 binge episodes a week for at least 3 months, and persistent overconcern with body shape and weight. Patients with eating disorders are usually secretive and often come to the attention of physicians only at the insistence of others.

Practitioners also should be alert for medical complications including hypothermia, edema, hypotension, bradycardia, infertility, and osteoporosis in patients with anorexia nervosa and fluid or electrolyte imbalance, hyperamylasemia, gastritis, esophagitis, gastric dilation, edema, dental erosion, swollen parotid glands, and gingivitis in patients with bulimia nervosa.

Treatment involves combining individual, behavioral, group, and family therapy with, possibly, psychopharmaceuticals. Primary care professionals are frequently the first to evaluate these patients, and their encouragement and support may help patients accept treatment. The treatment proceeds most smoothly if the primary care physician and psychiatrist work collaboratively with clear and frequent communication.

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Anorexia nervosa and bulimia nervosa are illnesses with many causes involving developmental, family dynamic, and biologic factors. Their treatment requires an eclectic, individualized approach using a broad range of therapies. Primary care professionals are often involved in the initial evaluation and treatment of the symptoms and medical complications of these illnesses. In addition to recognizing the eating disorder syndrome and treating the medical sequelae, primary care practitioners have an important role in referring patients for psychiatric treatment and in encouraging them to accept such treatment.*

Diagnosis and Epidemiology

The criteria for diagnosing anorexia nervosa and bulimia nervosa are listed in Tables 1 and 2.[1] Over the course of their illness, patients may alternate between anorexia nervosa and bulimia nervosa. Of patients who meet diagnostic criteria for bulimia nervosa, estimates are that 30% to 80% have histories of anorexia nervosa.[2] The prevalence of anorexia nervosa is estimated to be 1% of young women with a bimodal pattern of onset; the peaks of onset occur at 13 to 14 and 17 to 18 years of age.[3] Bulimia nervosa is more common and affects between 4% and 10% of adolescent and college-age women.[4-7]

Many women who do not meet the strict diagnostic criteria nevertheless experience some symptoms of eating disorders such as preoccupations with food and weight.[4] Binge eating has been reported in 79% of female college undergraduates, and more than 50% of women in America report that they are dieting.[8]

Patients with eating disorders are often secretive about their eating behavior and come to the attention of primary care physicians only when others become concerned and insist on a medical evaluation. Anorexic patients often hide food, abuse laxatives, diuretics, or both, exercise excessively, and adamantly deny their symptoms or any need for treatment. Patients with bulimia nervosa are even harder to recognize; overt physical changes usually are absent, and patients often go to great lengths to conceal their behavior.

Although they are more common in women, both of these disorders also affect men. Approximately 5% to 10% of patients with anorexia nervosa are men, and the disorder may be more common in gay men.[9-11] The prevalence of bulimia nervosa is estimated to be 0.2% of adolescent and young men, and men represent 10% to 15% of all bulimic patients in community-based studies.[12]

Causes of Eating Disorders

Although many different theories for eating disorders have been proposed, none appear to be universally true.[4]

Development and Family Dynamics

As they grow up, anorexic patients often struggle for autonomy, identity, self-respect, and self-control.[4,13] An additional dynamic may be their fear or rejection of adulthood.[8]

*See also "Has Our 'Healthy' Life-style Generated Eating Disorders?" by Joel Yager, MD, on pages 679-680 of this issue.

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The families of anorexic patients may be enmeshed, overprotective, rigid, and poor at resolving conflicts.[8] In addition, the parents may have high expectations for their children to succeed and may place pressure on their children to meet these possibly unrealistic expectations.[14]

Bulimic behavior is posited by some authors to service unmet developmental needs. For example, Goodsitt proposed that the behavior reduces tension, helps regulate the self, and provides intense stimulation needed to dampen feelings of emptiness.[15] Personality traits of low self-esteem, self-regulatory difficulties, frustration intolerance, and an impaired ability to recognize and directly express feelings (anger in particular) have been described in patients with bulimia nervosa.[16] Varying degrees and forms of psychopathology have been described in the families of patients with bulimia nervosa, such as impaired cohesion, decreased structure, high levels of conflict, and overt negativity.[16]

TABLE 1.—*Diagnostic Criteria for Anorexia Nervosa**

- Refusal to maintain body weight over a minimal normal weight for age and height—for example, weight loss leading to maintenance of body weight 15% below that expected—or failure to make expected weight gain during period of growth, leading to body weight 15% below that expected
- Intense fear of gaining weight or becoming fat, even though underweight
- Disturbance in the way in which body weight, size, or shape is perceived—for example, the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight
- In women, the absence of at least 3 consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea) (A woman is considered to have amenorrhea if her periods occur only following hormone—estrogen—administration)

*From the American Psychiatric Association.[1]

Neurochemical Changes

Perturbations of the neurotransmitter and neuroendocrine systems are seen in persons with anorexia nervosa, although whether these neurochemical changes precede, accompany, or follow the behavioral changes is unclear.[17] The hypothalamic-pituitary-adrenal axis appears perturbed with findings of hypercortisolemia, nonsuppressive dexamethasone suppression tests, and increased cerebrospinal fluid (CSF) levels of corticotropin-releasing hormone.[18-20] Disruption of the neuroendocrine system is suggested by the finding that 30% to 50% of women with anorexia nervosa have amenorrhea before significant weight loss occurs.[21] The return of menses in these patients is often delayed until some time after weight is regained.[8]

A dysregulation of neuroendocrine and neurotransmitter systems may also play a role in bulimia nervosa. The brain monamine systems appear to be important modulators of appetite, mood, and neuroendocrine function, and researchers have found increased plasma concentration of β-endorphin, decreased plasma concentration of norepinephrine, and decreased CSF levels of the dopamine metabolite, homovanillic acid, in bulimic patients.[22,23] A particularly provocative finding pertains to alterations in cholecystokinin levels in patients with bulimia nervosa. In a study of bulimic patients, the cholecystokinin response to a meal and postprandial peak levels were found to be decreased when compared with controls, suggesting a potential dysregulation of the satiety mechanism.[24]

Morbidity and Mortality

Anorexia nervosa and bulimia nervosa can have substantial morbidity and mortality. Starvation itself disturbs sleep, impairs concentration, and causes indecisiveness, preoccupation with food, mood lability, irritability, anxiety, and depression.[25,26] Physical sequelae can include hypothermia, dependent edema, bradycardia, hypotension, and lanugo. Anorexia nervosa can also lead to infertility, osteoporosis, cardiac failure, and, ultimately, death.[19] Mortality has been estimated to be about 6% but was 20% in a cohort of patients observed for 20 years.[27,28]

For bulimia nervosa, potential medical complications include electrolyte and fluid imbalances, hyperamylasemia, hypomagnesemia, gastric and esophageal irritation and bleeding, gastric dilation, large bowel abnormalities (due to laxative abuse), edema, and fatigue.[29] Swelling of the parotid glands bilaterally, dental erosion, gingivitis, and knuckle calluses (from inducing vomiting using the fingers) are common physical signs of bulimic behavior.

Prognosis

The prognosis for persons with eating disorders is extremely variable. Some patients with anorexia may improve without treatment; for others, however, the course can be long and pernicious. After treatment, 50% of patients with anorexia nervosa may continue having persistent psychosocial impairment, and after achieving remission through successful inpatient treatment, about 50% may relapse within a year.[27,30] Authors have concluded that treatment does not clearly change the course of anorexia nervosa.[28,31]

Despite that bleak conclusion, clinicians can be guided by fairly well-defined good-versus-poor prognostic features. The prognosis for anorexia nervosa is more hopeful if the patient admits to feeling hungry, has positive self-esteem, is fairly mature developmentally, and has attained some autonomy.[28,32] Poor prognostic features include being ill with the disorder for more than six years, premorbid obesity, bulimic behavior, unstable personality, dysfunctional marriage, excessive somatic concerns, and lower minimum weight.[33]

TABLE 2.—*Diagnostic Criteria for Bulimia Nervosa**

- Recurrent episodes of binge eating—rapid consumption of a large amount of food in a discrete period of time
- A feeling of lack of control over eating behavior during the eating binges
- Regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise to prevent weight gain
- A minimum average of 2 binge-eating episodes a week for at least 3 months
- Persistent overconcern with body shape and weight

*From the American Psychiatric Association.[1]

Prognostic features are less well defined for bulimia nervosa, but the long-term prognosis appears better than with anorexia nervosa. Most patients have an episodic course with an overall trend toward improvement.[28,34,35] A few patients with bulimia nervosa are resistant to treatment and have continuous, pernicious courses with extremely poor outcome.[28]

The prognosis is more hopeful if a patient is motivated for treatment, does not have concurrent disruptive psychopathology, and has good self-esteem.[4,36]

Eating Disorders and Mood Disorders

Controversy exists as to the relationship between eating and mood disorders. Estimates are that 40% to 80% of patients with eating disorders meet criteria for a lifelong history of depression.[8] Patients with eating disorders who have histories of depression tend to have families with histories of depression. Those without depressive histories themselves do not appear more likely than controls to have families with depression.[37] Understanding the nature of the relationship between mood and eating disorders is complicated by the potential for starvation itself to cause depression and by the potential for secondary depressions to be brought on by disruptive life events.[38]

Treating Eating Disorders

The treatment of eating disorders begins with the completion of a comprehensive, multidimensional evaluation.[4,39] Table 3 lists the areas that need to be addressed in this evaluation.[4] Obtaining as complete a history as possible is invaluable in planning treatment. In addition, various possible medical complications or concomitant psychiatric disorders must also be ruled out. The goals of treatment include medical stabilization, the control of abnormal eating behavior, an enhanced ability to identify and express emotions, and the prevention of relapse. Although this discussion focuses on the overall treatment as provided by psychiatrists and other ancillary specialists, primary care physicians need a basic knowledge of the treatment options available to make appropriate referrals once an eating disorder is diagnosed. Collaboration and close communication between the psychiatrist and the primary care physician are strongly recommended.

Anorexia Nervosa

Inpatient Psychiatric Treatment

Although many anorexic patients can be treated as outpatients, the following criteria have been defined to help clinicians decide whether inpatient psychiatric treatment is needed:

- Weight loss greater than 30% of ideal body weight;
- Persistent suicidal ideation;
- The need for withdrawal from laxatives, diet pills, or diuretics; and
- Lack of response to outpatient treatment.[39]

Before patients are discharged, they should show an improved ability to monitor diet and weight appropriately, manage a level of responsibility and activity similar to their home environment, and to achieve and maintain weight gain. Although in the past patients often required hospital stays of two to three months to accomplish these goals, the current economic climate of decreased coverage for psychiatric services has resulted in briefer stays. Therefore, once eating patterns are somewhat stable, patients are often discharged with subsequent close outpatient monitoring and treatment.

Correction of Starvation State

Primary care professionals can help psychiatrists to manage appropriately the refeeding of the anorexic patient in a starved state. Nutritional counseling and education of the patient are invaluable as this process is planned. Correcting the starvation state should be done gradually to prevent gastric dilation, pedal edema, and possible congestive heart failure.[28,40] Establishing an expected rate of weight gain—up to 1 kg (1 to 2 lb) per week—and a final goal weight is useful. Patients tend to do well initially with several small divided meals, with a gradual increase in the total amount of calories.[28] Tube feeding should be used only when absolutely necessary because of a life-threatening situation and is rarely required.[28]

Behavioral Treatment

One type of psychiatric treatment involves a behavioral approach that is efficacious, particularly early in treatment. With such an approach, patients participate in setting goals and defining positive reinforcers obtained on achieving these goals. Positive reinforcers may include, for example, increased autonomy, more privileges, and additional physical and social activities.[41,42] Overall, more lenient behavioral programs appear to be as effective as strict programs.[43] At Langley Porter Psychiatric Institute (San Francisco, California), patients and their primary nurse and therapist create and sign the written treatment plan that is then incorporated into the medical record. The plan is revised regularly as the treatment proceeds, with changes made based on a patient's progress.

TABLE 3.—*Assessing Eating Disorders*

Assessment	*Areas to Be Included*
History	
Eating disorder	Eating habits, rituals, behavior
	Body image
	Actual weight, desired weight, minimum and maximum weights
	Use of laxatives, diet pills, diuretics, emetics
	Presence of binge or purge behavior
	Menstrual history
	Use of exercise
Psychiatric	Include assessment for substance abuse, mood, anxiety, personality disorders, and suicidality
Past medical	
Family	Both medical and psychiatric
Examination	
Mental status	Suicidality and cognitive status
Physical	
Laboratory	Complete blood count, electrolytes, blood urea nitrogen, creatinine, calcium, magnesium, phosphate, cholesterol, lipids, amylase, total protein, albumin, liver function tests, thyroid function tests, urinalysis, and electrocardiogram; consider tuberculin skin test, pituitary hormone levels, electroencephalogram, and chest x-ray film

Individual Psychotherapy

Individual psychotherapy is a critical adjunct to the behavioral focus, but such treatment is difficult until the starvation state is at least partially corrected. The technique of psychotherapy involves an empathic therapist who helps contain the patient's overwhelming fears of losing control and becoming fat.[28,31] Patients benefit most from a reassuring, supportive, and realistic therapist. In the course of the individual therapy, common themes uncovered include fears of failure and of independence, negative self-concepts, a dis-

torted body image, an inability or an impaired ability to identify and express emotion, and a denial of the illness.[39]

Family Treatment

Family therapy may also be recommended by the psychiatric treatment team. Families of patients with anorexia nervosa may show dysfunctional behavior and interactional styles such as overprotectiveness, enmeshment, rigidity, and poor conflict resolution.[44] An active, educational, and often directive therapeutic stance can identify and change the interactional structure of such families. Goals include providing mutual support, fostering healthy autonomy, restructuring positions within the family system, and decreasing guilty feelings.[28]

Group Therapy

An additional useful method for treating patients with anorexia is group therapy. Self-help groups with an educational focus can assist patients to gain an increased understanding of their illness and to confront their fears of losing control once they begin to gain weight. Psychotherapeutic group work can lead to a confrontation of intellectualization, an improved expression of feelings, and a gradual emergence of increased autonomy and competence.[45]

Medications

Various psychoactive medications have been used to treat patients with anorexia nervosa, but no single medication has proved to be dramatically effective.[28,46] The long-term effects of the various agents when used in this population are unknown, and they are best thought of as an adjunct to the therapies already discussed. No real basis exists for the use of antipsychotic agents unless the patient has concomitant psychotic symptoms.[28] Anxiolytics may be useful in reducing panic and anxiety associated with fears of losing control and gaining weight.[47] The mood stabilizer lithium carbonate has been reported to show efficacy.[48] Because of its potential to cause weight gain—which may adversely affect patient compliance—and its possible toxicity in patients who binge and purge, lithium should be used with caution in this population.

Antidepressants have not proved to be effective in treating anorexia nervosa,[28,46] but a trial should be considered if depressive symptoms persist despite weight gain or if the patient has concomitant severe depressive, panic, or obsessive symptoms.[39] If used, antidepressants need to be prescribed cautiously at low initial doses with a slow upward titration because these patients tend to be extremely sensitive to adverse effects. Vital signs should be closely observed, and, because toxic serum concentrations may develop at relatively low doses, levels should be periodically checked.[47]

Bulimia Nervosa

Inpatient Psychiatric Treatment

Most patients with bulimia nervosa can be treated as outpatients, but active suicidal ideation, severe depression, marked electrolyte or fluid imbalance, and the need to be withdrawn from laxatives, diuretics, emetics, or diet pills are all indications for considering inpatient psychiatric treatment.[28] In addition, resistance to outpatient treatment or the failure of such treatment also mandate evaluation for admission. Discharge criteria include increased control over the abnormal eating behavior, correction of any underlying metabolic derangements, and a resolution of acute suicidality.

Behavioral Treatment

The initial goal of treatment is to break or to decrease the binge-purge cycle. Self-monitoring and self-reporting are key components in establishing a treatment plan. Patients should participate in identifying specific behavioral goals and positive and negative reinforcers. The prescription of regular eating patterns and of preventing the purge response to eating, coupled with much support and education, are also important components of the treatment plan.[49]

Individual Psychotherapy

The initial treatment of bulimia nervosa focuses primarily on the behavioral and cognitive restructuring techniques necessary to combat a patient's abnormal eating patterns. Other useful techniques include relaxation training, nutritional counseling, assertiveness training, and supportive psychotherapy.[50] Common themes in the work include improving a patient's low self-esteem, self-consciousness, poor recognition and identification of feelings, low frustration tolerance, and poor impulse control.

Family Treatment

Dysfunctional interactional styles have been described in some families of patients with bulimia nervosa.[8,21] Family treatment may help to improve the cohesion and structure of the family and to decrease the level of conflict. Therapists often use an active, educational, and directive style to improve communication within the family.

Group Therapy

Group therapy is also useful. The self-help organization Overeaters Anonymous was founded in 1960 to help persons with compulsive overeating and now has specialty groups focused on issues unique to those with bulimia nervosa. Psychotherapy groups use an eclectic approach including cognitive-behavioral, psychoeducational, explorative, and supportive techniques. Some of the specific techniques suggested include keeping detailed food diaries, learning goal setting, educating patients about the psychology and biology of bulimia nervosa, and relaxation training.[4]

Medications

Unlike with the treatment of anorexia nervosa, medications can be useful in treating bulimia nervosa. In general, doses should be cautiously determined, the patient should be carefully assessed for suicidal ideation, the therapist should be cognizant of the potential for binge-purge behavior to exacerbate side effects, and blood levels when available should be monitored for the particular medication.

Antidepressants appear to decrease binge-purge behavior, improve attitudes about eating, and attenuate the patients' preoccupation with food and weight.[51] Several double-blind studies have shown notable improvement in patients treated with antidepressant drugs, but abnormal eating patterns may continue after treatment.[52] Antidepressant drugs studied have included amitriptyline hydrochloride, mianserin hydrochloride, imipramine hydrochloride, desipramine hydrochloride, and phenelzine sulfate.[53-58] A recent review of both open trials and controlled studies with fluoxetine reported notable improvement with this agent as well.[59]

Antidepressants appear to be effective in these patients regardless of a concomitant diagnosis of depression. In a follow-up study of 36 patients, Edelstein and colleagues reported that outcome after treatment with antidepressants was not related to Beck depression scale scores.[60] Similarly, patients treated with phenelzine were reported to improve substantially when compared with those who received placebo, and the presence or absence of depression had no bearing on the patients' improvement.[57]

Conclusion

Primary care physicians are often the first health care professionals patients with anorexia or bulimia see, and they must be aware of how patients with these disorders present. Primary care physicians also play a crucial role in making appropriate referrals and in encouraging their patients to accept psychiatric treatment. Although working with this population can be challenging, helping them to regain control over their pathologic eating behavior can be gratifying and rewarding.

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