Assessment and Treatment of Bulimia Nervosa

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Bulimia nervosa is characterized by binge eating and inappropriate compensatory behaviors, such as vomiting, fasting, excessive exercise and the misuse of diuretics, laxatives or enemas. Although the etiology of this disorder is unknown, genetic and neurochemical factors have been implicated. Bulimia nervosa is 10 times more common in females than in males and affects up to 3 percent of young women. The condition usually becomes symptomatic between the ages of 13 and 20 years, and it has a chronic, sometimes episodic course. The long-term outcome has not been clarified. Other psychiatric conditions, including substance abuse, are frequently associated with bulimia nervosa and may compromise its diagnosis and treatment. Serious medical complications of bulimia nervosa are uncommon, but patients may suffer from dental erosion, swollen salivary glands, oral and hand trauma, gastrointestinal irritation and electrolyte imbalances (especially of potassium, calcium, sodium and hydrogen chloride). Treatment strategies are based on medication, psychotherapy or a combination of these modalities.

Bulimia nervosa is a psychiatric syndrome with potentially serious consequences.[1,2] Relatively effective treatments for this disorder have been developed, and early intervention is more likely to facilitate eventual recovery.[2] Unfortunately, few health care professionals receive training in the assessment of bulimia nervosa. Therefore, they may be unable to identify and treat patients with the disorder.

Historically, patients with bulimia nervosa often were hospitalized until the most disruptive symptoms ceased. In today's health care environment, hospitalization for bulimia nervosa is

infrequent and tends to take the form of brief admissions focused on crisis management.[3] Specialists in the field of eating disorders have responded to the present cost-containment measures by developing a combination of treatment modalities, including medication and individual and group psychotherapy, that can be used in the outpatient care of patients with bulimia nervosa. This article discusses the assessment and treatment of bulimia nervosa and considers how this disorder can best be handled in a managed care environment.

Definitions and Etiology

Bulimia nervosa is a multifaceted disorder with psychologic, physiologic, developmental and cultural components.[1,2] There may be a genetic predisposition for the disorder. Other predisposing factors include psychologic and personality factors, such as perfectionism, impaired self-concept, affective instability, poor impulse control and an absence of adaptive functioning to maturational tasks and developmental stressors (e.g., puberty, peer and parental relationships, sexuality, marriage and pregnancy).

Bulimia can occur with binge eating and purging, or with nonpurging behaviors such as fasting or excessive exercise.

Biologic researchers suggest that abnormalities of central nervous system neurotransmitters may also play a role in bulimia nervosa.[4] Furthermore, several familial factors may increase the risk of developing this disorder. For example, researchers have discovered that first- and second-degree relatives of individuals with bulimia nervosa have an increased incidence of depression and manic-depressive illnesses, eating disorders, and alcohol and substance abuse problems.[5-7]

Regardless of the cause, once bulimia nervosa is present, the physiologic effects of disordered eating appear to maintain the core features of the disorder, resulting in a self-perpetuating cycle.

Diagnostic Criteria

The diagnostic criteria for bulimia nervosa (*Table 1*) now include subtypes to distinguish patients who compensate for binge eating by purging (vomiting and/or the abuse of laxatives and diuretics) from those who use nonpurging behaviors (e.g., fasting or excessive exercising).[1]

A binge eating/purging subtype of anorexia nervosa also exists. Low body weight is the major factor that differentiates bulimia nervosa from this subtype of anorexia nervosa. Thus, according to the established diagnostic criteria,[1] patients who are 15 percent below natural body weight and binge eat or purge are considered to have anorexia nervosa. Patients can, and frequently do, move between diagnostic categories as their symptom pattern and weight change over the course of the illness.

Some patients do not meet the full criteria for bulimia nervosa or anorexia nervosa. These

patients may be classified as having an eating disorder "not otherwise specified" (*Table 2*).[1]

TABLE 1
Diagnostic Criteria for Bulimia Nervosa

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
   1. Eating, in a discrete period of time (e.g., within a two-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
   2. A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for three months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not

TABLE 2
Diagnostic Criteria for Eating Disorder Not Otherwise Specified

1. For females, all of the criteria for anorexia nervosa are met except that the individual has regular menses.
2. All of the criteria for anorexia nervosa are met except that, despite significant weight loss, the individual's current weight is in the normal range.
3. All of the criteria for bulimia nervosa are met, except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than three months.
4. The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (e.g., self-induced vomiting after the consumption of two cookies).
5. Repeatedly chewing and spitting out, but not swallowing, large

occur exclusively during episodes of anorexia nervosa.

Specify type:

Purging type: during the current episode of bulimia nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

Nonpurging type: during the current episode of bulimia nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

amounts of food.

6. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of bulimia nervosa.

Prevalence and Prognosis

Bulimia nervosa appears to have become more prevalent during the past 30 years. The disorder is 10 times more common in females than in males and affects 1 to 3 percent of female adolescents and young adults.[6]

Both anorexia nervosa and bulimia nervosa have a peak onset between the ages of 13 and 20 years. The disorder appears to have a chronic, sometimes episodic course in which periods of remission alternate with recurrences of binge/purge cycles. Some patients have bulimia nervosa that persists for 30 years or more.[8] Recent data suggest that patients with subsyndromal bulimia nervosa may show morbidity comparable to that in patients with the full syndrome.

The long-term outcome of bulimia nervosa is not known. Available research indicates that 30 percent of patients with bulimia nervosa rapidly relapse and up to 40 percent remain chronically symptomatic.[9]

Psychiatric Comorbidity

Clinical and research reports[10-13] emphasize a frequent association between bulimia nervosa and other psychiatric conditions. Comorbid major depression is commonly noted (*Table 3*), although it is not clear if the mood disturbance is a function of bulimia nervosa or a separate phenomenon.[11]

TABLE 3
Psychiatric Conditions Commonly Coexisting with Bulimia Nervosa

Mood disorders	**Anxiety disorders**
Major depression	Panic disorder
Dysthymic disorder	Obsessive-compulsive disorder
Bipolar disorder	Generalized anxiety disorder
	Post-traumatic stress disorder
Substance-related disorders	
Alcohol abuse	**Personality disorders**
Stimulant abuse	Borderline personality disorder
Polysubstance abuse	Histrionic personality disorder
	Narcissistic personality disorder
	Antisocial personality disorder

Information concerning the comorbidity rates of bipolar disorders (e.g., manic depression, rapid cycling mood disorder) and bulimia nervosa is somewhat limited. However, recent epidemiologic data indicate an increased incidence of rapid cycling mood disorders in patients with more severe, chronic bulimia nervosa.[13]

The association between bulimia nervosa and other anxiety and substance-related disorders has been well documented.[7] For example, substance abuse or dependence, particularly involving alcohol and stimulants, occurs in one third of patients with bulimia nervosa. Thus, a comorbid substance-related disorder must be addressed before effective treatment for bulimia nervosa can be initiated.

Significant research has been devoted to the high frequency of personality disturbances in patients with bulimia nervosa. Overall, between 2 and 50 percent of women with bulimia nervosa have some type of personality disorder, most commonly borderline, antisocial, histrionic or narcissistic personality disorder.[10,14-16]

To ensure that the treatment approach is properly designed and effective, the physician must look carefully for symptoms of comorbid psychiatric illness in patients with bulimia nervosa. Although further research is needed to determine the extent to which comorbid conditions influence the course of bulimia nervosa, the presence of these additional problems clearly complicates the treatment process.

Medical Complications

The medical complications of bulimia nervosa range from fairly benign, transient symptoms, such as fatigue, bloating and constipation, to chronic or life-threatening conditions, including hypokalemia, cathartic colon, impaired renal function and cardiac arrest[17,18] (*Table 4*).

Binge Eating

Binge eating alone rarely causes significant medical complications. Gastric rupture, the most serious complication, is uncommon.[17] More often, patients describe nausea, abdominal pain and distention, prolonged digestion and weight gain.

The combination of heightened anxiety, physical discomfort and intense guilt provokes the drive to purge the food by self-induced vomiting, excessive exercise or the misuse of ipecac, laxatives or diuretics. These purgative methods are associated with the more serious complications of bulimia nervosa.

Self-Induced Vomiting

Self-induced vomiting, the most common means of purging, is used by more than 75 percent of patients with bulimia nervosa.[19] Most patients vomit immediately or soon after a binge. During the binge, they commonly drink excessive fluids to "float the food" and facilitate regurgitation.

TABLE 4
Medical Complications of Bulimia Nervosa

Binge eating	Heartburn and sore throat
Gastric rupture	Upper gastrointestinal tears
Nausea	Perforation of upper digestive tract, esophagus or stomach*
Abdominal pain and distention	Excessive blood in vomitus and gastric pain†
Prolonged digestion	Electrolyte imbalances
Weight gain	Hypokalemia‡
Purging (most often, self-induced vomiting)	Fatigue
Dental erosion	Muscle spasms
Enlarged salivary glands	Heart palpitations
Oral/hand trauma	Paresthesias§
Esophageal/pharyngeal damage	Tetany§
Irritation of esophagus and/or pharynx due to contact with gastric acids	Seizures§
	Cardiac arrhythmias§

*--A rare but potentially lethal complication.
†--Should be evaluated on an urgent basis.
‡--A potential medical emergency.
§--Acute care required.

Vomiting is induced by stimulation of the pharynx using a finger or a narrow object such as a toothbrush. Some patients describe the learned ability to vomit by pressure or contraction of the abdominal muscles. A minority of patients develop reflux following the consumption of virtually any amount of food or fluid. Treatment of this reflux is difficult and requires that the patient practice relaxation during food ingestion.

Self-induced vomiting can lead to a number of serious medical complications.

Dental Erosion. Gastric acids may cause deterioration of tooth enamel (perimolysis), particularly involving the occlusal surfaces of molars and the posterior surfaces of maxillary incisors. Since these effects are irreversible, patients with this complication need to have

regular dental care.

Enlarged Salivary Glands. Frequent vomiting has been reported to cause swelling of the salivary glands in approximately 8 percent of patients with bulimia nervosa.[20] The exact etiology is unknown. The glandular enlargement is typically painless and may occur within several days of excessive vomiting. It appears to be a cosmetically distressing but medically benign condition. Other than cessation of vomiting, no specific treatment has been identified.

Because electrolyte disturbances can occur in patients who vomit frequently, chemistry profiles should be obtained in these patients regularly, especially when the patient experiences fatigue, muscle spasms or heart palpitations.

Oral and Hand Trauma. The induction of vomiting with a finger or an object can cause lacerations of the mouth and throat. Bleeding lacerations can also occur on the knuckles because of repeated contact with the front teeth. Some patients with bulimia nervosa develop a calloused, scarred area distal to their knuckles. Oral or hand trauma can provide evidence of vomiting even when patients deny bulimic symptoms.

Esophageal and Pharyngeal Complications. Because of repeated contact with gastric acids, the esophagus or pharynx may become irritated. Heartburn and sore throats may occur and are best treated with antacids and throat lozenges, respectively.[17]

Blood in the vomitus is an indication of upper gastrointestinal tears, which are a more serious complication of purging. Most tears heal well with cessation of vomiting. Perforation of the upper digestive tract, esophagus or stomach is an extremely rare but potentially lethal complication. Patients with gastric pain and excessive blood in their vomitus should be evaluated on an urgent basis.[17]

Electrolyte Imbalances. Serious depletions of hydrogen chloride, potassium, sodium and magnesium can occur because of the excessive loss of fluids during vomiting. Hypokalemia represents a potential medical emergency, and serum electrolyte levels should be measured as part of the initial evaluation in all new patients. Patients who complain of fatigue, muscle spasms or heart palpitations may be experiencing transient episodes of electrolyte disturbance. Paresthesias, tetany, seizures or cardiac arrhythmias are potential metabolic complications that require acute care.[17] Chemistry profiles should be obtained regularly in patients who continue to vomit or abuse purgatives on a regular basis.

Patient Evaluation

Physical Features

Since bulimia nervosa has numerous medical complications, a complete physical examination is imperative in patients with this disorder. The examination should include vital signs and an evaluation of height and weight relative to age. The physician should also look for general hair loss, lanugo, abdominal tenderness, acrocyanosis (cyanosis of the extremities), jaundice,

edema, parotid gland tenderness or enlargement, and scars on the dorsum of the hand.

Routine laboratory tests in patients with bulimia nervosa include a complete blood count with differential, serum chemistry and thyroid profiles, and urine chemistry microscopy testing. Depending on the results of the physical examination, additional laboratory tests, such as a chest radiograph and an electrocardiogram, may be indicated. Finally, patients who engage in self-induced vomiting should be referred for a complete dental examination.

Psychiatric Assessment

Because of the multifaceted nature of bulimia nervosa, a comprehensive psychiatric assessment is essential to developing the most appropriate treatment strategy. Patients should be referred to a mental health professional with specific expertise in this area. Frequently, student health programs or university medical centers have personnel who are experienced in the evaluation and treatment of eating disorders. Referral lists can also be obtained from the organizations listed in *Table 5*.

TABLE 5
National Organizations with Referral and Treatment Information for Eating Disorders

Academy for Eating Disorders, Montefiore Medical School--Adolescent Medicine
111 E. 210th St.
Bronx, NY 10467
Telephone: 718-920-6782

American Anorexia Bulimia Association
165 W. 46th St.
Suite 1108
New York, NY 10036
Telephone: 212-575-6200

Anorexia Nervosa and Related Eating Disorders, Inc.
P.O. Box 5102
Eugene, OR 97405
Telephone: 541-344-1144
Web site: www.anred.com

National Association of Anorexia Nervosa and Associated Disorders
P.O. Box 7
Highland Park, IL 60035
Telephone: 847-831-3438

National Eating Disorders Organization
6655 S. Yale Ave.
Tulsa, OK 74136
Telephone: 918-481-4044

The most appropriate course of treatment can usually be determined on the basis of a thorough evaluation of the patient's medical condition, associated eating behaviors and attitudes, body image, personality, developmental history and interpersonal relationships.

In the present managed care environment, hospitalization for patients with bulimia nervosa is no longer readily available. It has become especially important to determine a treatment

approach that will be effective as quickly as possible.[3] The physician needs to know when inpatient treatment is or is not indicated. A comprehensive evaluation provides the rationale for this judgment and includes the following:

1. Standardized testing to document the patient's general personality features, characterologic disturbance and attitudes about eating, body size and weight.
2. A complete history of the patient's body weight, eating patterns and attempts at weight loss, including typical daily food intake, methods of purging and perceived ideal weight.
3. An investigation of the patient's interpersonal history and functioning, including family dynamics, peer relationships, and present or past physical, sexual or emotional abuse.
4. An evaluation of medical and psychiatric comorbidity, as well as documentation of previous attempts at treatment.

Treatment

Considerable research has been devoted to identifying the most effective pharmacologic and psychologic treatments for bulimia nervosa, including the effects of different medications (e.g., tricyclic antidepressants and selective serotonin reuptake inhibitors) and the benefits of different psychotherapy approaches (e.g., behavioral treatment versus cognitive-behavioral therapy and individual versus group therapies). In addition, a few studies have compared the efficacies of different combinations of medications and psychotherapy.

Pharmacologic Interventions

Tricyclic Antidepressants. A number of placebo-controlled, double-blind studies[21-27] have examined the effectiveness of tricyclic antidepressants in patients with bulimia nervosa. Several of these studies[23,25-27] found that desipramine, 150 to 300 mg per day, was clearly superior to placebo. Two parallel studies[21,24] reported that imipramine, 176 to 300 mg per day, was also more beneficial than placebo. Amitriptyline, 150 mg per day, was shown to be more effective than placebo in reducing binge eating (72 percent versus 52 percent) and vomiting (78 percent versus 53 percent).[22] Overall, short-term placebo-controlled trials in patients with bulimia nervosa have reported that tricyclic antidepressants reduce binge eating by 47 to 91 percent and vomiting by 45 to 78 percent.

Monoamine Oxidase Inhibitors. Phenelzine, 60 to 80 mg per day, has been found to be more effective than placebo in reducing binge eating (64 percent versus 5 percent).[28] Isocarboxazid, 60 mg per day, has also been superior to placebo in controlling binge eating.[29] However, the monoamine oxidase inhibitors have considerable side effects and therefore are not recommended as initial pharmacologic therapy for bulimia nervosa.

Other Antidepressants. Several atypical antidepressants have been investigated in placebo-controlled double-blind studies. Bupropion, 25 to 450 mg per day, can effectively diminish the frequency of binge eating, but an increased rate of seizures discourages the use of this medication in patients with bulimia.[30] Binge eating has been reduced by 31 percent in patients treated with trazodone, 400 to 650 mg per day.[31]

Selective Serotonin Reuptake Inhibitors. The most promising results have been reported in studies investigating the use of fluoxetine in the treatment of bulimia nervosa.[32,33] In the most comprehensive drug trial to date,[33] 382 patients were evaluated in a multicenter study comparing 20- and 60-mg dosage of fluoxetine with placebo. At the 20-mg dosage, fluoxetine therapy resulted in a 45 percent reduction in binge eating, compared with a 33 percent reduction with placebo. Vomiting was reduced by 29 percent in patients treated with fluoxetine and by 5 percent in those who received placebo.

Notably, the patients who received fluoxetine in a dosage of 60 mg per day showed the best treatment response, demonstrating a 67 percent reduction in binge eating and a 56 percent reduction in vomiting.[33] A smaller study[32] replicated these findings, reporting a 51 percent reduction of binge eating in patients treated with fluoxetine at 60 mg per day, compared with a 17 percent reduction in those who were given placebo. The U.S. Food and Drug Administration has recently approved the use of fluoxetine for the treatment of bulimia nervosa.

Other Medications. In one placebo-controlled crossover study,[34] no improvement in bulimic symptoms was noted in patients treated with naltrexone, 50 mg per day. Likewise, a brief placebo-controlled trial of lithium[35] resulted in no significant differences between groups in the reduction of binge eating frequency.

Psychotherapy

Despite differences in the application of techniques, the skill level of clinicians and the duration of the illness, controlled studies have clearly established the superiority of cognitive-behavioral therapy for the treatment of bulimia nervosa. Based on comparative studies, this therapy used alone or in combination with another technique has resulted in the most significant reductions of binge eating and/or purging.

Cognitive-behavioral therapy principally involves a systematic series of interventions aimed at addressing the cognitive aspects of bulimia nervosa, such as the preoccupation with body, weight and food, perfectionism, dichotomous thinking and low self-esteem. This therapy also addresses the behavioral components of the illness, such as disturbed eating habits, binge eating, purging, dieting and ritualistic exercise.

Cognitive-behavioral therapy is the most effective treatment for bulimia, either alone or in combination with other therapies.

The initial goal of cognitive-behavioral therapy is to restore control over dietary intake. Caloric restriction and dieting efforts that set patients up to binge are avoided. Patients typically record their food intake and feelings. They then receive extensive feedback concerning their meal plan, symptom triggers, caloric intake and nutritional balance. Patients are also instructed in cognitive methods for challenging rigid thought patterns, methods for improving self-esteem, assertiveness training, and the identification and appropriate expression of feelings. A thorough explanation of cognitive-behavioral therapy for the treatment of bulimia nervosa is available elsewhere.[36]

The relative benefits of medications and cognitive-behavioral therapy have been assessed and compared. Study results indicate that cognitive-behavioral therapy is superior to medication alone and that the combination of cognitive-behavioral therapy and medication is more effective than the use of medication alone.[37]

Similarly, the durable effects of cognitive-behavioral therapy have been well documented. In contrast, there has been only one study of the long-term effectiveness of pharmacologic treatment. In that study, six months of desipramine therapy produced lasting improvement, even after the medication was withdrawn.[38]

Although cognitive-behavioral therapy is the first-line treatment of choice for bulimia nervosa, its effectiveness is limited. Approximately 50 percent of patients who receive this therapy stop binge eating and purging. The remaining patients show partial improvement, but a small number do not benefit at all.[37] A comorbid personality disorder is associated with a poorer response not only to cognitive-behavioral therapy but also to alternative therapies.

The approach to take when cognitive-behavioral therapy is not effective remains unclear. Some patients may not respond to additional pharmacologic or psychologic therapy. However, the hope is that some treatment is better than no treatment at all. Thus, no patient should be dismissed as "chronic and untreatable."

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