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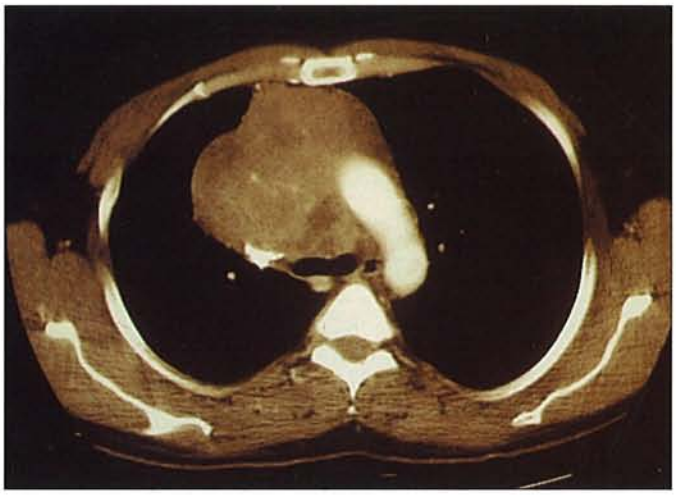

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To eat or not to eat: The question of anorexia nervosa

SHIRAH VOLLMER, MD

ABSTRACT **Anorexia nervosa is a psychological disorder characterized by an extreme, self-inflicted weight loss of at least 15% below normal weight for sex and height. Patients have a distorted body image and an obsession with weight and food. Amenorrhea is an indicator of associated physical dysfunction in postmenarchal women. The disorder usually affects adolescent girls and young women, but it may also occur in adult women and young men. Anorexia can cause serious biological, psychological, and sociological changes. The associated mortality rate is 5%-18%. Diagnosis is often confounded by the denial inherent to the disorder and frequent psychiatric comorbidity. Patients may be resistant to treatment, and relapse is common. But recovery is possible when the disorder is recognized early and treated aggressively. A comprehensive treatment plan must include medical management, individual psychotherapy, and family therapy.**

Primary care physicians are flooded with patient complaints that reflect a disturbed body image and a plethora of symptoms that connote the diagnostic spectrum of eating disorders. These common afflictions range from mild deviations in eating behavior to severe illnesses.

Anorexia nervosa and bulimia nervosa are distinguished from normal dieting, weight, and shape concerns by associated psychological disturbances, disordered eating behavior, and a disturbed body image. They are psychobiological conditions in the truest sense because eating satisfies a basic biologic need that is intimately involved in personal relationships. Estimates of the annual incidence of eating disorders in western Europe and the United States have shown an apparent increase from 0.5 per 100,000 in 1950 to 5 per 100,000 in the 1980s.[1]

The prevalence of bulimia nervosa among adolescent girls is approximately 2%-3%; another 1% develop anorexia nervosa.[2] Milder, subsyndromal variants of anorexia nervosa may be present in 5%-10% of adolescents.[3] This article will focus on the diagnosis and treatment of anorexia nervosa.

Dr. Vollmer is assistant clinical professor of family medicine and psychiatry, UCLA School of Medicine, Los Angeles. She is also in private practice in West Los Angeles.

What is anorexia nervosa?

Anorexia nervosa is defined by four primary characteristics. The first is self-imposed weight

loss (see "Anorexia nervosa: Not a new phenomenon"). The patient refuses to maintain a body weight over a minimally normal level for her (or his) age and height. The second diagnostic criterion is amenorrhea—the absence of at least three consecutive menstrual cycles in a postmenarchal woman.

The third feature is a distorted psychopathologic attitude toward eating and weight. This is usually manifested by an intense fear of gaining weight or becoming fat despite being significantly underweight. Finally, body weight or shape exerts undue influence on self-evaluation, and anorexic patients often deny the serious medical implications of their malnourished state.[11]

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV),[12] has added two subtypes that were not included in the previous edition's (DSM-III-R) criteria for anorexia nervosa. In the bulimic type, recurrent episodes of binge eating occur during the episode of anorexia nervosa. In the restricting type of anorexia nervosa, weight is lost by drastically reducing total food intake or excessively exercising, but without engaging in regular binge eating or purging episodes.

Anorexia nervosa: Not a new phenomenon

Literary accounts of self-inflicted starvation and weight loss can be traced back to the Middle Ages.[4] The earliest comprehensive description of anorexia nervosa appeared in Richard Morton's 1694 treatise on tubercular disease, where it was described as a state of nervous atrophy characterized by decreased appetite, amenorrhea, food aversion, emaciation, and hyperactivity.[5] Morton was intrigued by his patient's indifference to her malnourished state and apparent preservation of basic mental faculties. The mutual influences of mental and bodily processes and the pathogenic role of the emotions depicted in this early paper heralded contemporary psychosomatic thought.

Eating disorders were formally identified in the latter part of the 19th century as being a consequence of self-starvation due to psychological causes. Child psychiatrists became interested in anorexia nervosa in the 1960s and 1970s when a series of cases were reported,[6,7] along with the view that a specific psychopathology was involved.[8-10] In 1973, the disorder was brought from obscurity to the status of a treatable psychiatric condition.[8]

The anorexic population

The prevalence of anorexia nervosa among American women is about 0.2%-0.5%.[3] Caucasians are disproportionately affected. The female-to-male ratio is 8:1, with males accounting for 4%-6% of patients.[3] There are no sex differences in the age of onset, phenomenology, course, or outcome.

A 1980 Rochester, Minn., study found a prevalence of 0.3% for females and 0.02% for males. Among 15- to 19-year-old girls, it was 0.5%.[13] In vulnerable populations of English schoolgirls, rates of 0.5%-1% have been observed.[11] The general increase of anorexia nervosa over the past two decades is probably due to the increased number of young women who have been seriously and strenuously dieting.[14]

Anorexia usually begins either in early adolescence, shortly after menarche in a girl who has undergone normal growth and development, or later when she prepares to leave home or enters college. In essence, the age of onset may be thought of as trimodal: 10-12, 14-15 (peak), or 18-20 years of age. Among females, more than half of the cases begin before age 20 and about 75% before 25. Premenarchal onset is seen in less than 10% of patients.[6] These data suggest that anorexia is intimately related to the maturational problems brought on by pubertal stresses, with pubertal changes in body shape—such as the increasing size of thighs, buttocks, and abdomen—giving rise to concerns about body image.

The disorder may sometimes begin in adulthood or in girls as young as 8 years old.[15] A child with prepubertal anorexia nervosa may not actually lose weight, but instead will not gain weight during the active growth phase. Pubertal development and growth is either delayed or arrested.[11] The term "infantile anorex-

ia nervosa" is a misnomer, however; the disorder is more appropriately classified as a form of failure to thrive.

In boys, anorexia nervosa typically begins early in puberty. Again, pubertal development is retarded, and the child does not gain height. Later in adolescence, the development of masculine physique and musculature is postponed or stopped. Boys often exercise compulsively, and a preoccupation with body building is carried to unusual extremes.

Speculation about factors that heighten vulnerability includes high and competitive achievement standards. In some groups, such as ballet dancers, prevalence rates are higher because of the pressure exerted on them to stay thin. In a Toronto study of 55 female ballet students 11-14 years of age, the incidence was almost 26%.[16] Similarly, female athletes, especially those in appearance sports (gymnastics, diving, figure skating) may be more vulnerable because of the sport-related emphasis on body weight and fat and the drive to excel and win at any cost.[17]

Searching for a cause

The etiology of anorexia nervosa is not known, but considerable evidence points to an interaction between several biopsychosocial factors. The disorder may begin with a biological vulnerability that is then perpetuated by psychosocial influences. A genetic predisposition has also been suggested, since the concordance is higher in monozygotic twins (56%) than in dizygotic ones (7%).[18]

Several research teams are attempting to isolate the genes that contribute to eating disorders. Three groups have found an association between a particular polymorphism in the promoter region of the 5HT-2A serotonergic gene and anorexia nervosa.[19-21] Even though 5HT-2A gene dysfunction has been implicated in both anxiety and eating disorders, its precise role remains uncertain.

• *The biological factors* in anorexia nervosa are interesting. Several computed tomography studies have shown enlargement of the cerebrospinal fluid spaces during starvation, a finding that is reversed by weight gain.[22] Again, there is no explanation for these changes.

Starvation is known to alter the patient's mental state, as shown in a study in which a group of conscientious objectors were systematically starved.[23] In addition to physiologic changes such as reductions in heart and respiratory rates and in body temperatures, the subjects became increasingly obsessed with food, and some would episodically binge. Their interest in sex diminished as did their ability to concentrate. As a group, they were irritable and angry, and many developed depression, anxiety, and general physical malaise.

• *Genetic factors* There is a family history of eating disorders in about 29% of anorexic patients.[3] One study found a 6% lifetime risk of developing an eating disorder in first-degree relatives of persons with an eating disorder versus a 1% risk in relatives of a control group.[1] The rates of major affective illness have also been shown to be greater among first- and second-degree relatives of anorexics.

• *Family dynamics* appear to be important in the development of anorexia nervosa. Starvation breeds seclusiveness and secretiveness that promotes alienation from family members. Developmentally, individuation and self-mastery are arrested. Early concepts suggested that adolescents unable to meet the demands of their maturing sexuality would regress to a primitive level. Later theories focused on a dysfunctional mother-child relationship that led to ego defects and left the anorexic child unprepared to cope with the demands of adulthood.

Other investigators have suggested that the family's unhealthy organization around the symptom provides a mechanism for avoiding interpersonal conflicts.[24] The families of children who suffer from various psychosomatic disorders appear to share general patterns of interaction—overinvolvement, overprotectiveness, rigidity, and poor conflict resolution. In this context, disordered eating is seen as an interpersonal problem rather than an individual one.[24]

Some researchers have described a predisposing mother-child relationship in which the

individual needs of the child are subverted to the mother's sense of what is appropriate. This creates a slavishly compliant adolescent with no clear conception of herself as an individual.[7] Anorexic symptoms are thus regarded as part of a desperate struggle for self-respecting identity.

• *Environmental and social influences* have also been implicated in the development of eating disorders. The cultural obsession with thinness and emphasis on low-fat diets and exercise reinforce the psychological motivation of vulnerable individuals in their relentless pursuit of thinness. In this high-achievement orientation, anorexia is a way for young women to compete among themselves and demonstrate self-control.[25]

The prototypical anorexia nervosa patient is a young woman somewhat obsessional, introverted, emotionally reserved, and socially insecure. She is usually self-denying, deferential to others, and often highly conforming to parental expectations.

Recognizing anorexia

The prototypical anorexia nervosa patient is a young woman somewhat obsessional, introverted, emotionally reserved, and socially insecure. She is usually self-denying, deferential to others, and given to overcompliance, limited autonomy, and overly rigid and stereotyped thinking. She is often highly conforming to parental expectations.

Although anorexic patients vary considerably in temperament and social interaction, they are often ambitious and achievement-oriented. They have high standards for their own behavior, are empathic and sensitive to the feelings of others, and fear criticism. Denial is common: "I do not suffer and must then be well."[26]

The history is one of progressive self-starvation. The term anorexia ("nervous loss of appetite") is a misnomer because appetite loss is rare until late in the illness. Dieting may have begun after a comment about the girl's weight. She begins progressively to eliminate calorie-dense foods, desserts and sweets, and then entire meals. More and more exercise is usually combined with less and less sleep.

Anorexic persons engage in deceptive efforts to conceal their dieting and weight loss. Among common behavioral changes are social withdrawal, irritability, moodiness with marked lability, and depression. Nevertheless, academic achievement remains at a high level. Menstruation ceases after a significant amount of weight is lost and the proportion of body fat has fallen below the critical level.

Most of these patients have no psychiatric history. Parents may comment that their daughter has been "well adjusted." Initially, parents may have been unaware of the child's weight loss or complimented her for losing a moderate amount of weight. Most patients are brought to primary care physicians by concerned family members. Those who seek help on their own are usually suffering subjective distress over starvation-related somatic complaints such as weakness, dizziness, and lack of energy.[14]

Medical consequences

The 5%-18% mortality rate associated with eating disorders is among the highest of all mental conditions.[27] The risk of death is greatest when drugs are used to stimulate bowel movement or urination, which increases the risk of heart failure.

Anorexia also produces substantial physiologic changes that may perpetuate the cycle of abnormal eating behavior.[14] The associated starvation can damage many vital organs, because the body shifts into low gear as a protective effort. This leads to reductions in respiratory, pulse, and blood pressure rates and a slowing of thyroid function[2] (Table 1, page 43).

Table 1 Medical complications of anorexia nervosa

Cardiovascular
Bradycardia
Congestive heart failure
Hypotension
Endocrinologic
Amenorrhea
Hypometabolism
Hypothyroidism
Gastrointestinal
Acute vascular compression with intestinal obstruction
Delayed gastric motility
Pancreatitis
Hematologic
Anemia
Leukopenia
Thrombocytopenia
Metabolic
Electrolyte imbalance
Hypercarotenemia
Hypercholesterolemia

Source: Yates A. Current perspectives in the eating disorders: I. History, psychological and biological aspects. J Am Acad Child Adolesc Psychiatry 1989; 28:813-828.

Although nutritional rehabilitation and recovery from anorexia will improve most of the physical complications, some may be permanent. Potentially irreversible complications in adolescents include growth retardation (if anorexia starts before closure of the epiphyses); pubertal delay or arrest; and failure to reach peak bone mass.[2] The reduced bone mass can increase vulnerability to fractures, especially if the disorder has persisted longer than 5 years.

Initial interview: Asking the right questions

One or more lengthy interviews may be necessary to make the diagnosis. Establishing rapport and gaining the patient's confidence can be difficult. Anorexics typically deny that anything is wrong or suggest that their parents are unnecessarily concerned. They lack spontaneity and at first are guarded. Careful, directed questioning may elicit the patient's fear of becoming fat or belief that she is fat. Thus it is important to ask "Do you think you're fat?"

Activities such as collecting recipes or engaging in elaborate meal preparation for others should be explored, since anorexics tend to be preoccupied with food. Complete information about the patient's eating behavior usually requires an interview with a family member or roommate.[14] A good sexual history is essential because of the poor sexual adjustment common to these patients.

A significant percentage of eating disorder patients will eventually be diagnosed with another Axis I condition (such as mood, anxiety, or somatoform disorders) as they report their symptoms. Axis II personality disorders are also common. Determining the presence of psychiatric comorbidity is important for treatment planning. For example, patients with coexistent borderline personality disorder require more frequent therapeutic contacts because of their general pattern of unsatisfying relationships, high degree of emotional distress, and self-destructive behavior.[25]

Establishing the diagnosis

No specific findings can make the diagnosis of anorexia nervosa, but the physical examination can provide important clues about occult

Table 2 Symptoms and signs of anorexia nervosa

Abdominal pain	Orthostatic hypotension
Amenorrhea	Peripheral edema*
Bradycardia	Skin dryness
Cold intolerance	Weakness and fatigue
Constipation	Yellowish skin
Emaciation	
Hypothermia	
Nausea and vomiting	

*Especially common after refeeding

Sources: Adams R, Hinkebein MK, McQuillen M, et al. Prompt differentiation of Addison's disease from anorexia nervosa during weight loss and vomiting. South Med J 1998;91:208-211; Halmi KA. A 24-year-old woman with anorexia nervosa. JAMA 1998;279:1992-1998.

Table 3 Laboratory findings

Anemia	Hypochloremia
Elevated BUN	Hypokalemia
Hypercarotenemia	Hyponatremia
Hypercholesterolemia	Hypothyroidism
Hypercortisolism	Leukopenia
Hyperglycemia	Thrombocytopenia

Key: BUN = blood urea nitrogen

Sources: Adams R, Hinkebein MK, McQuillen M, et al. Prompt differentiation of Addison's disease from anorexia nervosa during weight loss and vomiting. South Med J 1998;91:208-211; Halmi KA. A 24-year-old woman with anorexia nervosa. JAMA 1998;279:1992-1998.

eating disorders[28] (Table 2, page 43). The patient's height and weight should be measured, and the highest and lowest weights at her present height recorded. Anorexia should be suspected if weight is below 85% of the 50th percentile on growth charts for children or below 85% of the "normal" weight range for adults.[14]

Emaciation is usually evident on physical examination, despite the bulky clothes often worn to disguise being underweight.[14] The patient can seem incongruously healthy, considering the degree of undernourishment. A pallid face with prominent cheek bones, sunken eyes, and dry skin and hair are common findings. Lanugo hair may be seen on the face, trunk, and extremities. The diminutive, sickly appearance these features convey can make the patient look much older or younger than her stated age.

• *Diagnostic testing* A battery of screening tests is warranted in anyone who meets the criteria for anorexia nervosa, including serum electrolytes; renal, thyroid, and liver function tests; glucose, amylase, and cholesterol determinations; a hematologic profile; and an electrocardiogram (ECG). ECG abnormalities may include low voltage, T wave inversion, and ST segment depression.

The results of laboratory studies will reflect undernutrition, a hypometabolic state, and diminished levels of pituitary gonadotropic hormones (Table 3). Hypokalemic alkalosis suggests self-induced vomiting or abuse of laxatives and diuretics. Such patients also frequently have elevated serum levels of salivary amylase. Fatty degeneration of the liver is indicated by elevated serum enzyme levels.[14]

• *Differential diagnosis* Anorexia nervosa must be distinguished from other physical and psychiatric disorders associated with weight loss, particularly major affective disorder and gastrointestinal diseases involving malabsorption. Primary care physicians should view with suspicion anyone whose low or rapidly fluctuating weight or medical problem cannot be accounted for in other ways (Table 4).

Choosing the best treatment

Patients with anorexia nervosa require aggressive treatment to prevent serious and potentially life-threatening physical conse-

Table 4 Differential diagnosis of anorexia nervosa

Medical conditions
Addison's disease
Adrenal disease
AIDS
Anterior pituitary dysfunction
Brain tumor
Diabetes mellitus
Gastrointestinal malabsorption syndromes
Hyperparathyroidism
Occult malignancies
Regional enteritis
Superior mesenteric artery syndrome
Ulcer
Psychiatric conditions
Major depressive disorder
Mood disorders
Schizophrenia

Sources: Halmi KA. A 24-year-old woman with anorexia nervosa JAMA 1998;279:1992-1998; Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: American Psychiatric Association, 1994; Adams R, Hinkebein MK, McQuillen M, et al. Prompt differentiation of Addison's disease from anorexia nervosa during weight loss and vomiting. South Med J 1998;91:206-211.

Resources for patients with anorexia nervosa

The National Association of Anorexia Nervosa and Associated Disorders (ANAD)
PO Box 7
Highland Park, IL 60035
Phone: (847) 831-3438
Fax: (847) 433-4632
Web site: http://www.northstarnet.org
E-mail: anad20@aol.com
A nonprofit educational and self-help organization that offers free counseling, information, referrals, educational programs, and self-help groups for victims and parents. They also provide a listing of therapists, hospitals, and clinics specializing in the treatment of eating disorders.

The National Eating Disorders Organization (NEDO)
6655 South Yale Avenue
Tulsa, OK 74136
Phone: (918) 481-4044
Fax: (918) 481-4076
Web site: http://www.laureate.com
E-mail: lpchnedo@ionet.net
An organization that focuses on education, prevention, and the provision of treatment resources for individuals, families, students, and health care professionals.

Eating Disorders Awareness and Prevention, Inc. (EDAP)
603 Stewart Street, Suite 803
Seattle, WA 98101
Phone: (206) 382-3587
Fax: (206) 292-9890
Web site: http://members.aol.com/_ht_b/edapinc
A national nonprofit organization dedicated to increasing awareness of and preventing eating disorders. It provides educational resources for schools, health professionals, community organizations, and individuals.

The American Anorexia/Bulimia Association, Inc. (AABA)
165 West 46th Street, Suite 1108
New York, NY 10036
Phone: (212) 575-6200
Web site: http://members.aol.com/amanbu
E-mail: AmAnBu@aol.com
A nonprofit organization dedicated to educating the general public about eating disorders and providing treatment referrals to sufferers and their families.

Anorexia Nervosa and Related Eating Disorders, Inc. (ANRED)
PO Box 5102
Eugene, OR 97405
Phone: (541) 344-1144
Web site: http://www.anred.com
E-mail: jarinor@rio.com
A nonprofit organization that provides free and low-cost information about anorexia nervosa and other eating disorders.

The Harvard Eating Disorders Center (HEDC)
356 Boylston Street
Boston, MA 02118
Phone: (888) 236-1188
Web site: http://www.hedc.org
A national nonprofit organization dedicated to research and education and the detection, treatment, and prevention of eating disorders.

The Center for the Study of Anorexia and Bulimia (CSAB)
1 West 91st Street
New York, NY 10024
Phone: (212) 595-3449
A nonprofit eating disorders clinic that provides treatment for sufferers and training for mental health professionals.

quences. A multidisciplinary treatment approach is often used that consists of psychiatric, social, nutritional, and medical services.[14,28] The high rate of relapse and the later development of other psychiatric disorders mandates a treatment program of adequate frequency, intensity, and duration to ensure effective intervention.[2]

Treatment has the twofold aim of restoring normal nutrition and eating habits and addressing associated psychological and family issues. Most patients are uninterested in and even resistant to treatment; they have been

brought to the physician's office unwillingly by agonizing relatives or friends. Parents can also be ambivalent about the need for treatment and may require considerable guidance from the physician, including education about the mortality statistics and medical hazards of eating disorders.

• *Outpatient treatment* is preferred in most cases, including education, correction of nutritional disturbances, psychotherapy geared to the patient's individual conflicts, and family therapy (see "Resources for patients with anorexia nervosa," page 49, and the FYPI, "Questions and answers about anorexia nervosa," page 63). Good sleep hygiene is also essential. The patient should be sent to a nutritionist for weight gain and may need to consume substantial quantities—as much as 3,500 calories a day, for example. Psychotherapeutic continuity is particularly important because patients with anorexia react with regression to separations and changes of therapists.

• *Hospitalization* is indicated for patients with a precarious medical condition caused by undernutrition, dehydration, electrolyte imbalance, or other complications and for those with a suicide risk or psychotic decompensation. Inpatient treatment is also appropriate when the family situation is unworkable, the patient is poorly motivated, or outpatient management has been unsuccessful.

In general, patients who are 20% below the expected weight for their height are recommended for inpatient programs. Those who are 30% below expected weight require 2-6 months of psychiatric hospitalization.[9] Inpatient psychiatric programs usually combine a behavioral management approach with individual psychotherapy, family education and therapy, and in some cases psychotropic medications.

Hospitalization is indicated for patients with a precarious medical condition caused by undernutrition, dehydration, electrolyte imbalance, or other complications and for those with a suicide risk or psychotic decompensation.

• *Gaining weight* The appropriate rate of increased caloric intake for the optimal rate of weight gain is controversial. If treatment proceeds too quickly, the patient is at risk for congestive heart failure. Engaging the patient's cooperation in the process is more important than gaining weight at a predetermined rate.

• *Pharmacotherapy* is another treatment option, although eating disorders per se are not specific indications for drug therapy, and there is no magic bullet. Some reports have supported the use of cyproheptadine HCl (Periactin)—a drug with antihistaminic and antiserotonergic properties—for the restricting type of anorexia nervosa.[9] Pharmacotherapy is also beneficial if the patient is comorbidly depressed. The selective serotonin reuptake inhibitors may help decrease obsessive food-related thoughts and compulsive rituals. And neuroleptic agents are sometimes required when the disorder takes on delusional proportions.

• *Behavioral therapy* programs follow an operant conditioning paradigm using positive reinforcement. Increases in physical activity, visiting privileges, and social activities are contingent on weight gain. For individual therapy, the physician must be committed, active, and confrontational. Therapeutic goals include building self-esteem, helping identity, and fostering the ability of the patient to tolerate her feelings—particularly anger. Family therapy is more effective in younger patients.

Outcome: Variability and predictability

Prognosis varies from spontaneous recovery without treatment, recovery after a variety of treatments, a fluctuating course of weight gains followed by relapses, to gradual deterioration ending in death from complications secondary to starvation. Some investigators believe that

the chance of recovery within 10 years after onset is less than 50%.[29] Poor outcome is associated with onset at 18 or older, purging behavior, laxative abuse, alcohol or substance abuse, and previous hospitalizations.[14]

The most consistent indicator of good outcome is early age of onset. In one 10-year follow-up study of 76 anorexic patients, only 14% had completely recovered, but those who did well had participated in an aggressive treatment program during the first year after hospital discharge.[30] Of note, a significant number of patients in this study were diagnosed with coexistent depression, anxiety, phobias, or obsessive-compulsive disorder.

The longest follow-up studies, which were conducted in Sweden[31] and Denmark,[32] underscore the extreme variability in outcome. Half of these patients recovered, one fourth had chronic anorexia nervosa, and one fourth suffered from other psychiatric illness. The mortality rate from suicide or complications of malnutrition was 6%, with death occurring an average of 7 years after initial evaluation.[32]

These findings suggest that anorexia nervosa has both relatively benign and malignant forms. Although the effect of treatment on outcome is not well understood, reason suggests that early treatment and prevention of severe starvation should eliminate chronicity. Recovery after more than 12 years of illness is rare, and a significant number of patients will develop depressive illnesses later in life.

Conclusion

Anorexia nervosa is a disorder with a psychopathology that ranges from mild to severe. Because of the secretiveness and denial typical of patients, physicians must rely on careful interviewing skills and suggestive signs and symptoms to establish the diagnosis. Medical and psychiatric conditions with similar presenting symptoms must be excluded.

A multidisciplinary treatment approach is required to address the patient's physical, nutritional, and psychological problems. Family therapy is also recommended. Although many patients can be treated as outpatients, hospitalization may sometimes be necessary. The highly variable outcome ranges from complete recovery to death.

Early diagnosis and vigorous intervention to restore the patient to a normal medical and psychological state have the greatest potential for reducing mortality. §

SELF-EXAMINATION

1. All but _____ are diagnostic criteria for anorexia nervosa.

   a) body weight below 15% of normal
   b) coexistent Axis I or Axis II condition
   c) amenorrhea in postmenarchal women
   d) intense fear of gaining weight or becoming fat, despite being underweight
   e) undue influence of body weight or shape on self-evaluation

2. Loss of appetite is a cardinal feature of anorexia.

   a) true
   b) false

3. Which of the following findings on electrocardiographic examination are not typical of anorexia nervosa?

   a) low voltage
   b) ST segment depression
   c) sinus tachycardia
   d) T wave inversion

4. Abuse of laxatives and diuretics may lead to hypokalemic alkalosis.

   a) true
   b) false

5. Which of the following statements about treating anorexia nervosa is false?

   a) Hospitalization is recommended for patients who are 20% below their expected weight.

b) Family therapy can be more successful in younger patients.

c) Up to 6 months of psychiatric hospitalization may be required.

d) Early age of onset is a predictor of poor outcome.

Answers at end of reference list.

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Answers: 1)b, 2)b, 3)c, 4)a, 5)d