Diagnosis and Treatment of Anorexia Nervosa

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Anorexia nervosa is much like other psychogenic or psychosomatic disorders in that it tends to run a chronic, relapsing course, with a proportion of patients never fully recovering. It is unlike them, however, in that significant mortality rates have been reported. With epidemiological studies now suggesting an increased incidence of the disorder, and follow-up studies indicating the importance of early treatment to favorable outcome, the vital role of family physicians in diagnosis and treatment becomes evident.

This paper draws on both published accounts and original case material to summarize the primary diagnostic criteria and secondary signs of anorexia nervosa. An illustrative history of a young woman with chronic anorexia nervosa is followed by a discussion of treatment alternatives. Although still in the experimental stage, behavior therapy is presented for its apparent efficacy and adaptability to the outpatient family practice setting.

The traditionally low incidence of anorexia nervosa has left most family oriented clinicians with scant, if any, experience with this problem. Estimates of 0.37, 0.45, and 1.6 cases per 100,000 population per year have been reported for American, Swedish, and Scottish populations.[1,2] Several observers, however, report a current increase in anorexia nervosa cases,[3,4] making it correspondingly more likely that family physicians will encounter it among their patients. Indeed, the prevalence may now be as high as one in 100 or one in 200 among 16- to 18-year-old school girls in upper socioeconomic groups.[5,6] Many anorexics avoid medical care or escape diagnosis for various reasons, but among hospitalized patients, that is, those most severely affected, mortality rates of 5 to 20 percent[7,8] have been reported. Thus, early diagnosis and effective intervention are imperative, especially as the more prolonged the illness, the poorer the prognosis.[8,9]

Because family physicians are in a position to see potential anorexics before their malnutrition becomes severe, a thorough review of anorexia nervosa is in order. This article summarizes the literature, focusing first on the primary diagnostic criteria and next on the physiological and psychological changes that occur secondary to the disorder. To illustrate the difficulties in both diagnosis and treatment, a case report is presented. Finally, a method of treatment is reviewed, supplementing opinions in the current literature with the authors' experience with patients at the University of Minnesota Hospitals and the University Family Practice Clinic.

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Diagnosis

Diagnostic Criteria

Contemporary theories regarding the etiology of anorexia nervosa postulate a wide range of intrafamilial,[10] psychodynamic,[11] hypothalamic,[12] and genetic[13] factors, suggesting that it is a psychosomatic illness par excellence.[14] Therefore, family physicians may find certain patterns of concurrent behavioral aberrations, psychopathology, and endocrine or other physiological dysfunctions.

While the etiology of the syndrome is still unclear, there is now widespread acceptance of the basic diagnostic criteria put forward by Feighner and associates.[15] They outline five primary criteria that must be fulfilled for a diagnosis of anorexia nervosa. These criteria must present *together* for an accurate diagnosis.

1. *The patient must be under age 25 at onset of the illness.* The typical patient is a girl just past puberty. Although boys also develop anorexia nervosa, only 1 in 15 cases is male,[16] with onset frequently prepubertal.[11]

2. *The patient must show a weight loss of at least 25 percent of original body weight, or in adolescents, a weight that is 25 percent below accepted standards for age and height.* People with such a marked weight loss are frequently those who were formerly obese or who report having gone on weight reduction diets in response to ridicule or self-consciousness over being fat. As a result, it is often difficult for a physician to determine when diet ends and disease begins.

Certainly, simple avoidance of fattening food is not in itself pathologic. But when a young person's weight loss is approaching 25 percent and he or she exhibits the other behaviors and attitudes outlined below, a diagnosis of anorexia nervosa should be considered.

3. *The patient has no medical illness that could account for the weight loss.*

4. *The patient holds "a distorted, implacable attitude towards eating, food, or weight that overrides hunger, admonitions, reassurance, and threats."*[15] Patients seem to have a virtual "weight phobia"[17] that expresses itself through a "relentless pursuit of thinness."[11] They manifest this attitude in a variety of ways which may include denying their illness when they are frankly malnourished and emaciated, manipulating or deceiving medical personnel and family members who insist they eat, obtaining overt pleasure from food refusal and weight loss, expressing distorted judgments of nutritional needs and intake, and/or developing unusual patterns of food handling (eg, hoarding or the excessive cooking for others frequently reported by family members).

5. *The patient has no other psychiatric disorder.* Psychological profiles such as the Minnesota Multiphasic Personality Inventory (MMPI) are generally normal. Despite a basically normal personality, anorexic persons often are perfectionistic, overachieving, or highly eager to please. Body imagery is often distorted,[18] but primary affective disorders, schizophrenia, and obsessive-compulsive or phobic neuroses are not present.

In addition to these five major criteria, Feighner et al[15] require that *at least two* of the following signs or symptoms also be present for a diagnosis of anorexia nervosa: *amenorrhea, lanugo, bradycardia* (persistent resting pulse of less than 60 beats/min), *periodic overactivity, episodic bulimia* (binge eating), and *vomiting* (which may be self-induced).

Secondary Features

A variety of other behavioral and physiological changes can also occur in patients with this disorder, depending upon the length and severity of their illness and the individual's susceptibilities. Several of these secondary signs are the focus of current research aimed at determining just what is cause and what is effect in this syndrome. Bizarre behaviors and peculiar preoccupations with food, for instance, can result from starvation[19] as well as lead to it.

While the explanatory data are not all in yet, there are numerous supporting signs and symptoms of anorexia nervosa which may aid in diagnosis. These include constipation, hypothermia, cold intolerance, hypotension, pitting edema, dry or scaly skin, acrocyanosis, petechiae, disturbed sleep, leukopenia, absence of anemia, normal breast tissue, maintenance of axillary and pubic hair, and normal intelligence.[17,20,21] In addition, there are complex metabolic and endocrine changes none of which are pathognomonic which may be reflected in abnormal laboratory findings.[21-22]

A family physician's knowledge of a patient's family structure, background, and attitudes will

provide many useful cues. There may actually be "psychosomatic families," characterized by enmeshment, overprotectiveness, rigidity, and lack of conflict resolution.[10] The physician should be alert to a family ethos stressing achievement and the presence of one overly solicitous or domineering parent to whom the anorexic patient seems to feel latent hostility and impotence. Also relevant are recent changes in the family. An event of dramatic impact for the patient—the death of a family member, a sibling's marriage or pregnancy, a devastating remark from a peer—and subsequent increase in social isolation frequently occur within the year preceding weight loss.

It may appear at this point that a definitive diagnosis of anorexia nervosa requires attention to an extraordinary array of physiological, psychological, and social factors. But, in fact, all the primary diagnostic signs and a great many of the secondary manifestations of the disorder are readily observable by family physicians in the course of normal practice. Providing continuing care enables family physicians to detect changes in patients' weight, diet, attitudes to food, blood pressure, menstruation, appearance, and family interactions which, in combination, suggest the need for further investigation. The following case report is presented to illustrate the natural history of anorexia nervosa and to highlight the difficulties in diagnosis and treatment of this little-known disorder.

Case History

A 25-year-old Caucasian woman was admitted to the family practice center at the University of Minnesota Hospital complaining of fatigue, weight loss, vomiting, and muscle spasm. She weighed 86.5 lbs, 69 percent of standard[23] for her 5 ft 5 in height.

Her maximum weight had been 147 lbs at 18 years of age, at which time she suffered a back injury and required three hospitalizations over a three-month period. During the ensuing year she lost over 30 lb; her menses became irregular and finally ceased. She did not resume menstruating during the next six years and had extensive amenorrhea work-ups in several hospitals, which failed to identify the etiology.

By age 25 years, when the patient came to the attention of the family practice center, she had a history of numerous hospitalizations, including neurologic, psychiatric, and endocrine evaluations, and had received diagnoses of hypothyroidism, psychophysiologic genitourinary disorder, hysterical personality, and hypokalemia secondary to chronic laxative abuse. She had lost over 40 percent of her maximum weight at age 18 and was vomiting and dehydrated. A diagnosis of anorexia nervosa was made and the patient was hospitalized. Following correction of fluid and electrolyte abnormalities, attention turned to her nutritional problems.

Her oral intake during the first 12 days in the hospital averaged 325 calories, but all attempts to improve her nutrition were thwarted by complaints of nausea, muscle spasm, headache, lack of appetite, or fatigue. She showed considerable irrational thinking about her nutritional needs, digestive processes, and bowel requirements. Periods of hyperactivity were followed by fatigue, nausea, and vomiting. She continued to lose weight.

The family practice staff arranged for transfer to an adult psychiatry unit. A behavioral contract (further described below) was made with the patient, specifying the activities she would be allowed for weight gain—group therapy, recreation, and passes out of the hospital. Bed rest, isolation, and tube feeding were employed as weight loss occurred. Over the next three months (by means of such extraordinary subterfuge as emptying her own nasogastric tube) the patient's weight increased less than 4 lbs to only 90 lbs. She discharged herself against medical advice.

The patient was contacted just prior to this writing and presented a complex picture of organic and psychological deterioration. She has had several episodes of congestive heart failure and kidney failure. She was once thought to have a superior mesenteric artery syndrome and underwent surgery but experienced only a temporary reduction in vomiting and a slight weight gain. At this writing, she is being treated for osteomalacia of nutritional etiology; her vomiting continues; she is troubled by persistent nightmares, and her weight hovers around 75 lb.

Treatment

In cases of advanced anorexia nervosa, the first treatment objective must be support of the per-

son's failing physiological functions. While the wisdom of hospitalization has been debated,[10,24] it is probably essential to preclude physiologic collapse by the time total weight loss approaches 60 lb.[25] Tube feeding, parenteral hyperalimentation, and respiratory support measures may be employed as required.

Once an imminent crisis has been averted, or before such a dangerous state is reached, general patient management must have a dual orientation. One set of objectives is aimed at restoring nutritional balance and generating weight gain sufficient to allow independent functioning. The other set of objectives involves psychologic support and reorganization of pathological behavior patterns so that nutritional and psychosocial adjustments are maintained. To achieve these interdependent goals, a broad range of treatment modalities have been employed. These include firm encouragement of food intake, force feeding, feeding of high calorie formulas, pharmacotherapy, hormonal therapy, electroconvulsive therapy, leukotomy, hypnosis, psychotherapy, family therapy, and behavior modification therapy.[25-28] Successful outcomes are reported for *all* of these therapeutic regimens, but comparative evaluation of the various techniques is difficult.

Despite its failure in the case reported here, behavior therapy is a promising new treatment for anorexia nervosa. The treatment program relies on positive reinforcements contingent upon the patient's weight gain. The treatment protocol used at University of Minnesota Hospitals, which is similar to behavior therapy programs at other institutions,[29,30] is outlined below.

- Meals are served family style on the unit. Patients choose their food from that which is available to the general patient population. No special food requests are granted.
- Time available for eating is limited, but there is not other attention to or discussion of food or eating habits.
- Patients are weighed daily under standard conditions, with a projected weight gain of 0.5 pounds per day.
- Patients are reinforced daily, with contingencies provided for both weight loss and weight gain. Failure to meet the projected weight gain results in social isolation for 24 hours. Successful weight gain provides individualized reinforcements that have been negotiated with the patients.
- A target weight is negotiated with the patient as part of the total plan. Once this weight is achieved, a maintenance weight contract is implemented. Continuation of this contract as an outpatient seems to be a key factor in successful long-term treatment.

Whereas force feeding, administration of drugs, and many other treatments serve to reinforce an anorexic patient's perception that others run his or her life, the insistence in behavior therapy that it is up to the patient to gain weight and personal privileges may bring some psychological benefit along with improved nutrition. Thus, while overall weight gain during treatment is only slightly greater for patients treated with behavior therapy than for those treated by other means,[29] one might expect less tendency among the behaviorally treated group to relapse into weight loss after discharge. Follow-up data must be gathered to document whether the regular, incremental weight gains observed are accompanied by an increase in the patients' experience of a sense of control and effectiveness. Certainly, improvement in both spheres would be a major advantage of any successful treatment program for anorexia nervosa.

A second, and more definite, advantage of behavior therapy is that patient management is simplified. The frustrations of the nursing staff diminish as the anorexic learns that furtiveness and finagling for special favors do not pay off.

A third major advantage of a behavioral approach—and the one of most relevance to family physicians—is that it can be modified easily for outpatient use. A sample of a written contract used for both inpatients and outpatients is shown in Figure 1. Times, obligations, and rewards for all parties must be stipulated, yet as the sample shows, the contract can be quite simple. In the family practice clinic setting it is perhaps more important than in the hospital that weight goals be firmly established and clearly understood at the outset, and that positive and negative reinforcers be carefully matched to the patient's individual life-style, likes, and dislikes. While an outpatient experience offers more opportunity for patients to subvert their contract, or "fall off the wagon," it also offers more positive reinforcers, and reinforcers of more lasting importance, than the most comfortable hospitals. The family physician, then, must elicit and evaluate the information that becomes incorporated into the treatment contract.

Patient: I agree to weigh in each Thursday at 9:00 AM, either in the doctor's office or in the school nurse's office. If I am on or above the projected weight line I can participate in gymnastics that next week. Failure to be at the weigh-in on time is considered not making my weight.

I will not talk about food, weight, or the like with my family. If I do this successfully for the week (ie, no more than three times Monday to Sunday), I can ride my bicycle to school and around town. Otherwise, I must take the bus, arrange a ride, or not be able to go.

Parents: We will not comment on Mary's eating, weight, or activity level. If we do, Mary will receive $2 extra allowance for that week (failure means more than three times).

Comments will be publicly noted on the bulletin board by the telephone.

Figure 1. Sample outpatient contract for weight gain

The contract should also be carefully negotiated with members of the patient's family since they will likely play a central role in helping the patient keep the contract.

Outcomes

Prognosis for anorexia nervosa is generally uncertain, with an estimated 40 to 60 percent of patients recovering completely and the rest either suffering severe and recurrent episodes, or continuing to manifest some sort of eating disorder and/or psychopathology.[9] Whether or not this situation will change with the advent of more sophisticated behavioral techniques remains to be seen. Behavior therapy has not been used with a sufficiently large number of patients for an assessment of its overall efficacy in anorexia nervosa. Indeed, follow-up studies have not shown that *any* given treatment is superior to any other, whether evaluated in terms of survival and short-term weight gain, or in terms of long-term weight maintenance, menstrual regularity, and psychosocial well-being. Moreover, there is no predictable correlation between short-term successes and ultimate outcomes.[8,25,26,31]

Preliminary analyses of data from a three-site research project suggest that certain types of patients benefit more from behavior therapy than others. Those who benefit most are patients with no prior outpatient treatment,[29] and those with a history of bulimia, hyperactivity, relatively low amounts of anorexic behavior, highly manipulative social behavior, relatively greater distortion of body size, and families rated poorly by social workers for their ability to maintain patients' weight gains (according to a written communication from Elke Eckert, MD, principal investigator for the University of Minnesota Behavior Therapy in Anorexia Nervosa Research Program, January 1979). Even if family physicians are unable to determine unequivocally that an individual is a good candidate for behavior therapy, they can be reassured that the dangers attributed to it by some critics[32] are not demonstrated in studies of larger patient populations.[33]

Independent of treatment, there are known predictors of outcome that may be helpful to physicians planning or assessing therapy. Prognostic signs correlated with favorable long-term recovery include the following: younger age at onset; absence of premorbid obesity, vomiting, or

laxative abuse; absence of multiple psychosomatic, depressive, or obsessive-compulsive symptoms; membership in upper socioeconomic groups; being female rather than male; and lack of preoccupation with body size or nutrition within the family.[9,20,34]

In conclusion, virtually every follow-up study conducted has associated shorter duration of the anorexia nervosa disorder with better ultimate outcome. After a certain point, it seems the psychophysiological adaptation to starvation itself exacerbates whatever hormonal or psychosocial conditions initially caused the disorder, resulting in an ever escalating, or recurring, cycle of food restriction and unhappy, obsessive behavior. Seeing their patients on a continuous basis and armed with knowledge of patients' personal circumstances, family physicians are in a position to detect and treat this illness in its very earliest stages. Accurate, early diagnosis and speedy, sensitive intervention will prevent anorexia nervosa from becoming a self-perpetuating adaptation to life for some of these troubled patients.*

*To help anorexics and their families deal with this difficult disease, several self-help organizations have been formed. Staffed by psychiatrists, pediatricians, and recovered anorexics, these may provide useful referrals. The American Anorexia Nervosa Association can be contacted by telephone at (201) 836-1800. The National Anorexic Aid Society, Inc. can be contacted by mail at Box 29461, Columbus, OH 43229.

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