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Genetic Study of Anorexia Nervosa Fueled by NIMH Grant

It's an exciting first for the field of eating disorders: a sizable federal grant to advance the study of the genetics of anorexia nervosa. In September, The National Institute of Mental Health (NIMH) awarded a $10 million grant to continue work to unravel the genetics of anorexia nervosa. This is the largest single financial commitment the NIMH has made to the field of eating disorders, and the first-ever government-funded genetic study of anorexia nervosa.

The study brings together 10 groups of researchers from North America and Europe at 7 centers in the U.S. and 3 in Canada, Germany, and Great Britain. One year of funding is also provided for analysis of the data and manuscript preparation. (See the box for participating groups). The study will be directed by Walter H. Kaye, MD, University of Pittsburgh and Wade Barrettini, MD, PhD, at the University of Pennsylvania.

During the five-year study, researchers will seek to find regions of the human genome that contain genes that affect the risk for anorexia nervosa. To do so, researchers will recruit families with two or more members, mostly siblings, who have or had anorexia nervosa, and will analyze their DNA.

Toward an International Database

According to Craig Johnson, PhD, of Laureate Psychiatric Clinic and Hospital, Tulsa, OK, a study investigator, the outcome will help build an international genetics database for anorexia nervosa. Currently there is no DNA databank for anorexia nervosa or bulimia nervosa, he said. Dr. Johnson added that any researcher in the world who is qualified to do genetic research could apply to NIMH and gain access to the DNA database. The database will create a tremendous opportunity to further our understanding of anorexia nervosa and bulimia nervosa, he said.

Building Upon the Success of a Prior Study

The new study will build upon the 5 years of genetic research by the Collaborative Study of the Genetics of Anorexia Nervosa and Bulimia Nervosa. This study was also headed by Dr. Kaye, and funded by a private group, the Price Foundation. Many of the centers participating in the first study will continue their work in the new NIMH-funded study.

The results of the previous genetic study laid the groundwork for the new study, according to Dr. Johnson. First, the results from the preliminary study were very promising. Second, The Collaborative Group had a multi-year track record of being able to cooperate—and had a remarkable

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Update

Telephone Follow-up Aids Obese Children After Treatment

Frequent telephone follow-up contacts and activity diaries may help children maintain weight loss and improve exercise levels, according to the results of a recent study. Twenty children who completed a 10-month residential program were randomly assigned to either: (1) a 5-month follow-up program (experimental group) or (2) care as usual (controls). Children in the experimental group sent an activity diary to a therapist each week; the therapist then telephoned the children biweekly to discuss their activities and behavior. The control group tended to regain more weight than the experimental group, but differences in weight gain were not significant. The experimental group participated in sports and high-intensity activities significantly more than the control group. The active children also spent less time watching television and playing computer games than did the control group. Dr. B. Deforche and colleagues reported their results at the Ninth International Congress on Obesity in Sao Paulo, Brazil, last August.

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record in which all 10 international sites worked well together. Finally, he noted, families affected by anorexia nervosa have been extremely willing to participate in the research and study of the disease.

Researchers will begin recruiting families soon. The goal is to find 400 families with two or more members who have had or currently have anorexia nervosa. Study participation will be relatively easy: interested families will first have a telephone interview, and those who qualify can then have blood drawn by their local laboratories for DNA studies. Participants will receive a small honorarium for their participation.

How will the researchers find the families? A variety of different recruitment strategies will be used, beginning with advertisements from current treatment centers. Families from any part of the U.S., with at least 2 members who have had a diagnosis or symptoms of anorexia nervosa and who are willing to participate are candidates. Dr. Johnson noted that finding the study participants will be challenging, since the inclusion criteria are rigid and a sizeable number of participants—400 families—are needed. It will require an extraordinary recruitment effort, he said. Several versions of genetic sampling have already been done, so that it is possible to progressively close in on the extent and nature of the genetic contribution to anorexia nervosa.

Answering Difficult Questions

As Dr. Johnson noted, the main question that has been difficult to answer thus far from the sociocultural-psychological family perspective is if 100 14-year-old girls are all dieting, exercising, reducing calories and fats, or struggling with body image dissatisfaction, why do only 3 develop a more severe form of anorexia nervosa or bulimia nervosa? Family studies have revealed that relatives of persons with eating disorders have a substantially greater risk of developing eating disorders themselves. Preliminary studies indicate that individuals with a mother or sister who has had anorexia nervosa are 12 times more likely than people without any family history of the disorder to develop anorexia nervosa. These same family members have a fourfold greater risk for developing bulimia nervosa. A number of traits such as perfectionism, anxiety and obsessionality contribute to a risk for developing anorexia nervosa.

Dr. Johnson said, "The hope for the future would be that eventually there would be some ability to definitely diagnose and more importantly to intervene as a result of understanding the genetics and neurochemistry and biology of the illness."

In addition to developing new and more effective diagnosis and treatment for anorexia nervosa, studies that identify the genetic basis for illnesses such as anorexia nervosa will help reduce the unfair stigma aimed at mentally ill persons. Dr. Johnson noted, "Part of the great thing about doing the research is that hopefully we will be able to reduce some of the shame associated with these disorders by showing that these individuals probably had some genetic predisposition that made them more vulnerable to the disorder."

Research Centers Participating in the Genetic Study

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Allan S. Kaplan, MD, FRCP and D. Blake Woodside, MD, FRCP
University Health Network of Toronto General Hospital, Toronto, Canada

Ian Jones, MD, Nick Craddock, MD, and David Robertson, MD
University of Birmingham, England

Data will be analyzed by Drs. Bernie Devlin and Walter Kaye and Laura Thornton, University of Pittsburgh; and Dr. Cindy Bulik, Virginia Commonwealth University, and Dr. Kelly Klump, Michigan State University. Dr. Lisa Lilenfeld at Georgia State University will manage the genetic and psychiatric data.

For more information, check the study website, *www.angenetics.org*, or call the toll-free information number, 1-888-895-3886. E-mail: edresearch@msx.upmc.edu.

Self-help for Bulimia and BED

In Great Britain, the shortage of skilled therapists to treat people with bulimia nervosa and binge eating disorder has led researchers to search for treatment alternatives. A guided self-help program might offer an alternative treatment in a primary care setting, according to a group at Leicester Warwick Medical School, Leicester, UK (*Br J Psychiatry* 2002;181:230).

The British researchers investigated the effectiveness of self-help alone, self-help with face-to-face counseling, and counseling by telephone alone. They used a randomized controlled study comparing the three forms of self-help over 4 months with a comparison group of patients on a waiting list for treatment (control group).

Self-help delivered over four sessions with face-to-face counseling led to improved outcome after 4 months. They also found some evidence to support the use of guidance by telephone. A few patients had lasting remission in comparison to those receiving more intense counseling with self-help, but there was no significant difference in outcome between the groups after they had finished the stepped-care program. Those who had initially been offered guided self-help did have a lower long-term dropout rate.

Predicting the Onset of Anorexia Nervosa and Bulimia Nervosa

The etiologies of anorexia nervosa (AN) and bulimia nervosa (BN) are still uncertain. Although cross-sectional studies have produced useful hypotheses about risk factors, they haven't been able to clarify whether the risk factors actually preceded development of an eating disorder or if they were consequences of it.

Researchers at four universities investigated prospective predictors of partial and full syndrome AN and BN among 157 young women (*Int J Eat Disord* 2002; 32:282). The women were first studied in the 7th through 10th grades (ages 12-16) and followed up 8 years later in young adulthood (ages 20-24). A telephone interview assessed eating habits, current dieting, weight and menstrual history, and feelings about food and weight. The Structured Clinical Interview for DSM-III-R (SCID) was used for screening for AN and the SCID was adapted to include open-ended questions about binge characteristics and concerns about shape and weight for BN.

Full and partial syndromes

Full-syndrome diagnoses were made according to DSM-IV criteria. For partial syndromes, the researchers used the category of eating disorder not otherwise specified. Partial syndrome AN was diagnosed when a participant reported a time when she was preoccupied with weight or dieting, at least 15% underweight, or others thought she was too thin. In addition, partial syndrome AN was diagnosed when a participant had any of the following: feeling that food controlled her life or compulsive eating habits, purging and/or amenorrhea.

Partial syndrome BN was diagnosed when the participant reported a time in which she engaged in regular binge eating (on average 3 times a month) and felt a lack of control over eating, as well as using compensatory purging. Frequency, duration and overconcern with shape and weight criteria for BN were not required for the partial syndrome.

What predicted the onset of AN and BN?

The most clear-cut risk for developing AN involved thinness and perfectionism. The 7th to 10th grade girls who went on to develop anorexia nervosa as young adults were initially thinner than the other girls. The measures of perfectionism used in the study mostly assessed the participant's propensity for setting rigid, unrealistic standards for herself, striving to meet those standards, and equating lack of complete success in these goals with complete failure.

The authors comment that girls with such impossibly high standards are likely to have difficulty meeting the demands of adolescence, which include adjusting to a new body shape that often doesn't conform to the excessively thin physique held up as the "feminine ideal."

This characteristic also works against the flexibility and ability to take risks that are needed for developing a sense of mastery and for establishing close social relationships. Thus, such girls may shrink from the new demands posed by adolescence and their rigid perfectionist approach to dieting may allow development and maintenance of the very low body weight seen in this disorder. It also appeared that the initial thinness was not due to excessive dieting or eating problems because the initial EAT scores were not significantly higher in girls who developed the anorexic syndrome.

The predictors for bulimia nervosa were less clear-cut, according to the researchers. Negative emotion was a significant predictor and this negative affect might contribute to the development of the binge-purge cycle.

Homosexuality: A Risk Factor for Eating Disorders in Men

Although most cases of eating disorders are reported among women, 10% to 15% of eating disorders occur in men. When researchers look for symptoms shared by both sexes, they find similarities in age at onset, body image dissatisfaction, and methods of attempting to control weight. The one risk factor that is unique for men is homosexuality, and from 10% to 42% of men with eating disorders have identified themselves as homosexual or bisexual (*European Eat Disord Rev* 1999; 7:1).

A recent study by Pamela K. Keel and Christopher J. Russell of Harvard University has indicated that homosexuality is a specific risk factor for development of eating disorders among men (*Int J Eat Disord* 2002;31:300). A group of 122 men (58 homosexual men and 64 heterosexual men) were recruited from the community. The questionnaire asked about age, height, weight, ethnicity, sexual orientation, education level, occupation, relationships and comfort level with sexual orientation; participants also completed six standardized questionnaires including the Beck Depression Inventory and Rosenberg Self-Esteem Scale.

What the researchers found

The main finding was that the homosexual men had greater body dissatisfaction and higher levels of bulimic and anorexic symptoms than did the heterosexual men. Disordered eating among the men was highly correlated with depression and poor self-esteem. While levels of femininity did not correlate significantly with any measure of eating pathology, lower levels of masculinity were associated with depression, worse self-esteem, and body dissatisfaction. Men who were less comfortable with their sexual orientation reported more depression, worse self-esteem, more symptoms of anorexia, and greater body dissatisfaction.

There has been much speculation about why gay men are more prone to develop eating pathology than heterosexual men. One hypothesis surrounds gender role identification. However, unlike earlier studies, this study did not support identification with femininity as a factor that contributed to a specific association between homosexuality and eating disorders in men.

A Dangerous Duo: Body Dysmorphic Disorder with Anorexia Nervosa

According to a team at the University of Minnesota, body dysmorphic disorder (BDD) is relatively common among patients with anorexia nervosa (*Int J Eat Disord* 2002;32:291). When the two disorders are combined, more serious illness results. Because of this, the authors suggest that all patients with anorexia nervosa be screened for BDD.

BDD is an often-secret preoccupation with an imagined or slight defect in appearance. Patients agonize over noses that seem too long or skin that isn't perfect. They may spend hours checking and rechecking themselves in mirrors, or measuring their bodies again and again. In severe cases, patients won't leave their homes because of their imagined defects. This distressing and often disabling condition is often under-diagnosed because patients with BDD are extremely secretive about their feelings and actions. As the authors learned, patients with both disorders are much more ill than those with anorexia nervosa alone.

A high percentage of morbidity

When Dr. Jon E. Grant and colleagues at the University of Minnesota screened 41 consecutive patients with anorexia nervosa (41 females with a mean age of 26.7 years), 16, or 39%, were diagnosed with comorbid BDD. Fourteen of the 32 patients with anorexia nervosa, restricting subtype (43.8% of the total group) and 2 of the 9 patients with anorexia nervosa, binge eating subtype (22.2%), were found to have BDD. None of the women had been diagnosed with BDD while hospitalized for treatment.

The problems with BDD appeared before anorexic symptoms in 15 (93.8%) of anorexia nervosa patients with BDD. Those with comorbid AN and BDD also reported an earlier age of onset of anorexia nervosa compared to patients without BDD. The 16 women with AN and BDD had a variety of other current Axis I disorders: 14 met DSM-IV criteria for an Axis I disorder in additional to AN and BDD. More than half had a major depressive disorder a fourth had social phobia, and 19% had obsessive-compulsive disorder. Patients with anorexia nervosa without comorbid BDD met DSM-IV criteria for a current Axis I disorder other than anorexia nervosa—major depressive disorder (12, or 48%); obsessive-compulsive disorder (4, or 16%), and alcohol abuse (2, or 8%).

More severe symptoms

Those with AN and BDD were more ill than were those without comorbid BDD. The rate of attempted suicide was significantly greater and they were hospitalized significantly more often than the anorexic patients without BDD. More than half of those with comorbid disease had consulted a non-psychiatric physician for an appearance concern not related to anorexia nervosa. Seven had sought plastic surgery although none had undergone surgery. (In 4 cases the physician refused to do the surgery and 3 other patients couldn't afford it). Four others who sought dermatological help were all treated with dermabrasion and antibiotics.

AN and BDD share a number of features, including compulsive symptoms such as mirror-checking and body measuring. Both have high rates of obsessive-compulsive symptoms, and there is evidence that both disorders respond to serotonin reuptake inhibitors.

Failure to detect BDD may have important implications for treat-

ment, according to the authors. In their study, 69% of patients with AN and BDD first sought non-psychiatric treatment to correct their perceived "defects" in appearance. Nonpsychiatric treatment usually does not improve BDD symptoms, and such treatment should be avoided or approached with caution in this population. A potential increase of suicides also underscores the importance of screening for BDD.

DSM-IV Criteria for BDD

A. Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.
B. The preoccupation causes clinically significant distress or impairment in social, occupation, or other important areas of functioning.
C. The preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in Anorexia Nervosa).

Which Children Will be Overweight or Obese As Adults?

The Centers for Disease Control and Prevention (CDC) recently published revised growth charts for children and teens in the U.S. Results of a recent study indicate that higher-than-normal body mass index (BMI, kg/m$^{2)}$ values during childhood and adolescence are important risk factors for adult obesity and overweight (*Am J Clin Nutr* 2002;76:497).

Dr. Shumei Sun Guo and colleagues at Wright State University School of Medicine, Kettering, OH, used logistical models fitted to relate adult overweight and obesity to childhood and teen BMI values at each age for 166 males and 181 females in the Fels Longitudinal Study. The Fels study is a follow-up study of children who grew up in the years around World War II.

Relationship between high BMI in youth and obesity in adulthood

The researchers found that a child or adolescent with a high BMI percentile on the CDC growth charts had an increased risk of being overweight or obese by 35 years of age, and that this risk increases with age. For example, the probability of adult obesity at the 85th percentile for young males was ≤20% for young males to 17 years of age and 20% to 60% afterward; the corresponding probability for young females was 20% to 40% up to 18 years of age and 40% to 60% afterward.

Some additional points to ponder

In an editorial accompanying the article, George A. Bray, MD, a world authority on obesity, pointed out some limitations of Dr. Guo's study. First, the children who participated in the Fels Longitudinal Study grew up during World War II, before obesity had become a major epidemic. Thus, the data might underestimate or overestimate the risk of obesity later in life. In addition, all the children in the Fels study were white; and Dr. Bray pointed out that today obesity affects more minorities than whites in the U.S. In addition, environmental factors should be factored in because they probably play a predominant role in the current epidemic of overweight and obesity. He suggests adding the weight status of parents to the approach used by Dr. Guo because children from families in which one or both parents are overweight have a much higher risk of becoming obese as adults than do children whose parents are not overweight.

Finally, he adds, certain genetic conditions have to be factored in. For example, gestational diabetes can also play an important role in development of obesity, as seen in the Pima Indians of the Southwest. As a group, the Pima have the highest rate of obesity and diabetes mellitus in the country. In the 1920s, they were lean and had one of the lowest rates of diabetes in the world. A diet that changed from native foods to fast foods and automation with labor-saving devices brought on the epidemic of obesity and diabetes that plagues the Pima today.

BOOK REVIEW

Body Image: A Handbook of Theory, Research and Clinical Practice

(Thomas Cash and Thomas Pruzinksy, Eds. NY: Guilford Press, 2002, 530 pp; $60)

The editors of this volume, among the most prominent body image researchers on the current scene, have compiled a highly readable, authoritative handbook of 57 chapters by leading figures in the field that pull together contemporary perspectives on virtually all aspects of body image research. The authors list serves as a "Who's Who" in body image research. Topics span the entire field. They include theory, assessment and measurement, developmental aspects, social and cultural issues, gender, psychological states and psychiatric conditions concerning normative negative body image. These topics also range to the eating disorders and body dysmorphic disorder, and medical and surgical themes from obesity to conditions involving dermatology, dentistry, urology, obstetrics and gynecology, rehabilitation medicine, cosmetic and reconstructive surgery, and fitness enhancement. The chapters on psychosocial rehabilitation, psychotherapies, social intervention, prevention and ecological activism will particularly please those of us challenged with helping individuals and communities deal with these disorders.

In order to cover all of this territory in a manageable number of pages, the chapters are necessarily brief. I found this feature to be both a benefit and a frustration. Many topics about which I'd like to know much more are just touched upon in these pages. I guess I'll have to look up some of the many current references included in each chapter. This limitation is more than compensated for by the breadth and quality of coverage. I'm going to be reaching for this volume frequently, and I'll add this book to my "must" list for clinicians and researchers working with patients with any body image-related issue. That's a lot of us.

—J.Y.

A Delicate Balance: Treating the Resistant AN Patient

Treatment for anorexia nervosa (AN) usually combines nutritional therapy to increase body weight and psychiatric therapy or family therapy, or both. Patients with AN, however, do not want to gain weight, and typically show an intense fear of doing so, even when they are near collapse from malnutrition.

According to Dr. Chris MacDonald, of Dalhousie University, Halifax, Nova Scotia, when patients resist rather than refuse treatment, clinicians are faced with the ethical challenge of deciding whether particular interventions will be infringements upon patient autonomy (*Can J Psychiatry* 2002;47:267).

A great deal of attention has been paid to treatment refusal, according to Dr. MacDonald, and much less to treatment resistance. Clinicians who are faced with a patient who resists being treated may find themselves using coercion, persuasion, and manipulation in an attempt to get patients to eat. Even patients who are voluntarily hospitalized will have their actions limited or modified in a range of ways, for example:

Restricted movement within the hospital (for example, the patient will be ordered to stay in her room or on the ward); demanding that an inpatient eat 100% of her meals; and cajoling the patient into doing volunteer work in the hope that forging such social connections will benefit the patient.

Patient autonomy

Respect for patient autonomy is a cornerstone tenet of modern medical ethics, writes Dr. MacDonald. Autonomy is defined as the ability to direct one's own life to make one's own decisions. It usually has two parts: control of one's actions (absence of constraint) and the capacity for rational thought. First, individuals with severe AN have diminished capacity in each category. Secondly, individuals suffering from AN typically lack the capacity to rationally think about the effects of their caloric intake. Thus, such patients may lack both of the characteristics needed for autonomous action in regard to food and exercise.

Infringing upon a patient's autonomy is always ethically worrisome, according to the author, but it is particularly so in certain situations. First, there is a notorious power imbalance between clinicians and their patients. Second, infringement of autonomy is of particular concern for those whose autonomy is already seriously compromised.

When is interference warranted?

According to Dr. MacDonald, in some cases treating a patient despite resistance might be justified on the basis of consent. Most patients in eating disorders programs are there more or less voluntarily; that is, they want clinical intervention even though they may disagree with their clinician over the specific goals of the intervention (for example, weight gain vs. palliation, or body fat increase vs. electrolyte rebalance). He adds that when a patient has voluntarily entered a program and knows what treatment will follow, she is in effect consenting to a certain amount of infringement upon her autonomy. This will also depend upon the freedom with which consent was given—was the patient under undue pressure from her family, or has she been threatened with civil commitment if she doesn't enter treatment? Also, treating a resistant patient may also be justified simply on the basis of the good of the patient.

The author notes that because of the primacy of respect for autonomy in modern health care ethics, the simple fact that a proposed treatment will help the patient is not sufficient to justify imposing that treatment. Instead, the desire to do good must be balanced against the need to respect patient autonomy.

Finally, Dr. MacDonald notes that every action that infringes upon another person's autonomy is ethically significant, though not always ethically wrong. He adds that the treatment of AN merely constitutes a particularly clear example of what is in fact a general part of clinical practice: Ethical decision-making pervades all clinical practice.

'Supersizing' America

As you reach for that cookie at the convenience store counter, would you suspect that it is more than seven times the size of the USDA Food Pyramid standard portion, or that the delicious muffin also at your fingertips is more than three times the size of one standard portion? Typical portions of pasta exceed USDA standards by 480%.

In the good old days, foods such as soft drinks and chocolate were available in just one size—a size smaller than or similar to the smallest size available today. As two researchers from New York University found, in fast food restaurants today's servings of hamburgers, fries and soft drinks are two to five times larger than original sizes. In the 1950s, for example, McDonalds served just one size order of French fries—one equal to today's "small."

"Supersizing" is relatively recent phenomenon, according to nutritionists Lisa R. Young and Marion Nestle (*Am J Public Health* 2002;92:246). In fact, their recent study shows that portions of fast foods and other foods have zoomed up in size since the 1970s. Young and Nestle gathered food samples from the most popular fast-food, family-type, and take-out restaurants, collected information from food package labels or food manufacturers and even studied old cookbooks and menus to track changing portion sizes.

According to the researchers, auto manufacturers used to install smaller drink holders in cars and even muffin pans were smaller than those of today. Portion sizes began

to increase in the 1970s, rose sharply in the 1980s, and have continued to grow, along with body weights. Today's "Large" order of McDonald's fries weighs the same as 1998's "Supersize." Between 1998 and 2001, the "Supersize" drink got even bigger—the drink is now an ounce larger.

Frivolous lawsuits bloom

A New York City law firm recently filed a class action suit against McDonald's Corporation on behalf of city children who have "suffered health problems, including diabetes, high blood pressure, and obesity" after regularly eating at McDonalds restaurants. The class-action suit by attorney Samuel Hirsch in a federal court in Manhattan is one of four cases now filed against McDonald's and other fast-food restaurants, which blame the fast-food corporations for increased obesity among children. Two other cases have been dismissed and another one is dormant.

The current case, which seeks unspecified damages, was brought on behalf of overweight children who ate at two McDonald's located in the Bronx. One of the plaintiffs is a 14-year-old girl who is 4' 10" and weighs 170 lb. The plaintiffs charge that McDonald's failed to warn customers about the possible health effects caused by their foods. McDonald's has replied that many nutrition professionals say that McDonald's foods can be part of a healthy diet, based on consumers using balance, variety and moderation.

A change in portion sizes sought

The two nutritionists hope to use all their data to bring about changes in portion sizing, including unification of Government standard sizes so the public can better understand what they are getting. They also urge public health efforts to educate the American public about the links between size, calorie intake, and weight gain.

Risks of Bone Loss Persist Long After Diagnosis

An increasing body of research has revealed the deleterious effects of eating disorders upon bone density. Danish researchers at the Osteoporosis Clinic, Aarhus University, Aarhaus, Denmark, report that the risk of fractures persisted after the initial diagnosis among 4394 retrospectively studied patients with bulimia nervosa (BN) anorexia nervosa (AN), and eating disorders not otherwise specified (EDNOS). The increased risk of fractures years after diagnosis indicated permanent damage to the skeleton (*Int J Eat Disord* 2002;32:301).

One explanation for the results was that the young skeleton might have a better chance of recovering than the older skeleton does.

Age at diagnosis was important

Except for fractures of the femur, patients with AN did not have an increased fracture risk before they were diagnosed. However, a significant increase in fracture risk was noted after diagnosis of AN, especially more than one year later.

Age at diagnosis was also important for patients with AN that was diagnosed after they were 20 years of age, for this group had a higher incidence rate ratio (IRR) compared to controls before diagnosis compared to those diagnosed before the age of 20 years. The IRR was established as a ratio of bone density between patients and controls. Each patient was compared with three age-, gender-, and social-status-matched controls.

Among patients with BN, the risk of any fracture was increased up to 10 years before diagnosis, but returned to normal more than one year after diagnosis. The EDNOS group had a significantly increased risk of any fracture both before and after diagnosis.

The increased fracture risk after diagnosis among the anorexic patients may indicate one of two things—first, that the anorexic state permanently damaged the skeleton, which was worsened by the age-related decline in bone mineral density or, second, that the treatment was not successful.

The observation in both AN and BN patients that the relative facture risk of diagnosis was increased with increasing age at diagnosis might suggest that the young skeleton has a better potential for recovery after treatment than does the older skeleton. Another explanation might be that treatment was delayed for the older subjects, leading to more-pronounced adverse effects on the skeleton.

The femoral neck was a target in patients with AN

The increase in fracture risk in AN was 1.98.Fracture risk at the femoral neck was 7.17. In the spine, the risk was 3.49. A loss of fat on the hips would mean a decrease in the shock-absorbing potential of this "fat cushion," according to the authors, and the increase in femoral neck fractures before diagnosis suggests that this site may be more susceptible to the effects of malnutrition and reduction in soft tissue padding than other sites on the skeleton.

Among those with BN, there was a nonsignificant increase in several types of fractures, but only the increase in the total number of fractures was statistically significant. The authors think one explanation may be that in BN—in contrast to AN—the disorder may go unnoticed for a long time because patients do not present with any alarming signs of excessive weight loss; this might also be true for those with EDNOS.

Questions & Answers

Chewing and Spitting Out Food

Q. Is there a name for the eating-disordered behavior of chewing and spitting out food before swallowing? Is there any research on the prevalence of and association with other behaviors? Finally, how many calories are retained with this behavior? (M.K., Philadelphia)

A. As far back as 1985, Mitchell et al reported that 64.5% of a large series of patients with bulimia nervosa chewed and spit out food, and used other compensatory means of not retaining calories (*Am J Psychiatry* 1985; 142:482). Since that time, a number of case reports and small series have been reported on this common phenomenon. The most recent series, published by Robert Palmer's group in Leicester, England, reported this symptom pattern in 22% of their eating disorder patients. They found that patients with anorexia nervosa and eating disorders not otherwise specified who reported chewing and spitting out food showed more severe eating-related pathology. This was not the case in patients with bulimia nervosa. In none of the patient groups was chewing and spitting out associated with the frequency or intensity of binge eating per se (*Int J Eat Disord* 2002; 32:112). Several clinicians, including myself, have observed these phenomena, and suggest that this pattern serves different psychological functions for different individuals. Often it helps satisfy various oral urges—needs to bite, masticate, and taste, with the additional clear goal of not ingesting the calories. I'm not aware of research showing how many calories may actually be retained in this practice. Undoubtedly it will vary with the type of food being chewed—how easily it's liquefied, and how much unintentional swallowing actually occurs.

To my knowledge, this symptom pattern has no specific medical label, although the recent Leicester study used the acronym CHSP for "chewing and spitting out." You've identified an "appellation niche" that scholars may wish to fill in future publications. Masticatoria Nervosa?

–J.Y.

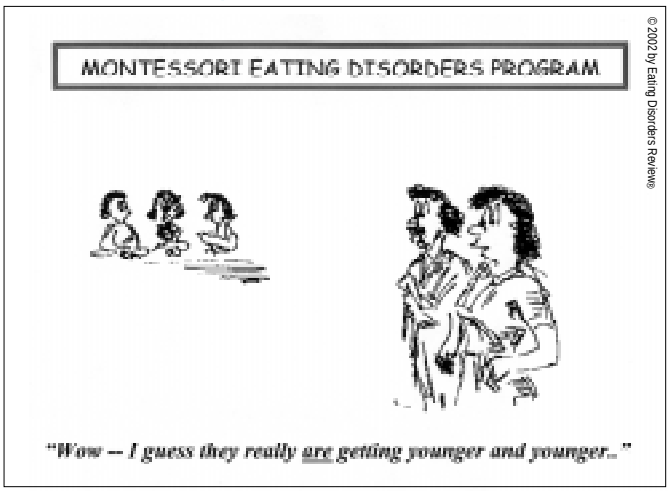
Perfectionism May Cluster in Families

Some personality traits, such as perfectionism, and weight and shape concerns, may cluster in families of probands with eating disorders, according to the results of a recent Price Foundation study (*Int J Eat Dis* 2002;31:290).

Mothers of probands had elevated levels of perfectionism and more concerns about weight and shape than did mothers of controls. Mothers with daughters with eating disorder diagnoses other than restricting AN had elevated levels of perfectionism. Among fathers, the one exception was increased perfectionism reported among fathers of offspring with restricting AN.

According to the authors, perfectionism may be an environmentally transmitted trait, whereby parental perfectionism "flows down" to the next generation. Or, pervasive perfectionism in the offspring could increase perfectionistic tendencies in parents. The third and most likely possibility is that perfectionism could be a genetically mediated personality trait.

Nibbles, by Hunter



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