Teach the Teacher

Eating Disorders in Adolescents

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I. Introduction

A. Biopsychosocial illness
   1. Medical, nutritional and social aspects
   2. Requires multidisciplinary treatment team
   3. Associated with significant morbidity and mortality
   4. “A relentless pursuit of thinness” (Hilde Bruch, MD)

B. Facts
   1. Two million people suffer from an eating disorder
   2. 90% are women, ages 12–25 years old
   3. Increasing incidence in males over the past decade
   4. Typical personality: bright, successful, high achievers
      a. A disorder of Western culture. All ethnicities are at risk
      b. Less than one third are overweight prior to the onset of the eating disorder (ED)

C. Possible Mechanism(s) for Developing an ED
   1. Biological factors
      a. Higher incidence in monozygotic twins
      b. Increased relative risk among family members
   2. Pubertal changes
      a. Normal increase in body fat at menarche may be an uncomfortable body change for an adolescent
      b. Lack of control over physiology of puberty may evoke ED symptoms in an adolescent
      c. In those with prior sexual abuse, counteracting the more “womanly” appearance by dieting may be a protective or subconscious behavior
   3. Personality type
      a. High achiever, perfectionistic, goal oriented low self-esteem, high self-criticism
   4. Media influence
      a. Glamour and success equated with thinness
      b. Role models often with “perfect” bodies
      c. The thin, beautiful female appears to lead the “perfect life”

II. Diagnosing an ED

A. Presenting Symptoms
   1. Non-specific:
      Fatigue, weakness, lack of energy
      Abdominal pain, constipation, bloating
      Cold intolerance
      Headaches
      Preoccupation with food/weight/shape
   2. Specific:
      Weight loss
      Absent or irregular menstrual periods
      Syncope or pre-syncopal symptoms
      Edema, swollen extremities
      Enlarged or tender parotid glands
      Muscle weakness, exercise intolerance
      Tooth or gum sensitivity (hot/cold)

B. Physical Signs
   1. Vital signs: hypotension, bradycardia, hypothermia
   2. Growth: arrest of height, loss of weight, low BMI
   3. Regression (or lack of progression) of pubertal milestones
   4. Lanugo hair (downy hair on face, neck, upper back)
   5. Dry skin, carotenemic palms, lesions on dorsum of fingers (Russell’s sign)
6. Dental erosions, salivary gland enlargement
7. Loss of subcutaneous body fat

C. **Rule out a physiological etiology for the weight loss or presenting symptoms**

D. **Physical examination: multi-system illness**
   1. Vital signs, height, weight, BMI, LMP
   2. HEENT/Neck: lymphadenopathy, thyromegaly, salivary gland enlargement, dental erosions
   3. Heart/Lungs: rate, rhythm, murmurs
   4. Abdomen: organomegaly, tenderness
   5. Genital: pubertal stage, signs of low estrogen
   6. Skin: lanugo hair, carotenemia, dry skin, hand lesions, bruising, petechiae
   7. Neurological: affect, ability to process information, muscle strength and symmetry

E. **Laboratory evaluation**
   1. CBC with differential, platelet count
   2. Electrolytes (including Ca, Mg, PO4), glucose, BUN, Creatinine
   3. Hepatic function, amylase (especially if self-induced vomiting is suspected)
   4. CRP, ESR
   5. Free T4, TSH
   6. LH, FSH, Prolactin, pregnancy test
   7. Urinalysis
   8. EKG
   9. Bone density (if chronic amenorrhea)

III. **DSM IV Criteria**

A. **Anorexia Nervosa (307.1)**
   Refusal to maintain normal body weight
   Loss of 15% or more of original body weight
   Intense fear of gaining weight or becoming fat
   Distorted body image
   Amenorrhea for three months
   Restricting or Binge-eating/purging subtypes

B. **Bulimia Nervosa (307.51)**
   Recurrent episodes of binge-eating
   Recurrent compensatory behavior to prevent weight gain (self-induced vomiting, laxative or diuretic use, excessive exercise, fasting)
   At least two binge/purge episodes weekly for three months
   Self-evaluation strongly influenced by body shape or weight
   Above not exclusively during episodes of Anorexia Nervosa
   Purging and Non-purging subtypes

C. **Eating Disorder Not Otherwise Specified (EDNOS) (307.50)**
   All criteria for Anorexia Nervosa except has regular menses
   All criteria for Anorexia Nervosa except current weight is in normal range, despite significant weight loss
   All criteria for Bulimia Nervosa except binge/purge behaviors occur less than twice weekly or fewer than three months duration
   Regular use of compensatory behavior by a normal weight person after eating small or appropriate food amounts

D. **Binge-Eating Disorder**
   Recurrent binge episodes without regular compensatory behaviors

IV. **History**

A. **Weight history**
   Premorbid body weight; maximum and minimum weights
   Rate of weight loss
   Methods: caloric restriction, exercise, laxative or diuretic use, diet pills, self-induced vomiting
   24-hour dietary recall (specific)

B. **Exercise history**
   Organized sports, extracurricular activities, individual exercise regimen
   Menstrual history
   Injuries, including stress fractures

C. **Psychosocial history**
   Home situation, family dynamics
   School performance
   Substance abuse
   History of sexual abuse or physical harm

D. **Family history**
   Physical illness
   Mental health illness, including eating disorders

E. **Complete Review of Systems**

V. **Medical Complications: A Multi-System Disease**

A. **Cardiovascular**
   Arrhythmias, postural hypotension, syncope
   EKG abnormalities
   Congestive heart failure (rehydration, refeeding)
   Ipecac poisoning

B. **Fluid and Electrolytes**
   Low serum sodium, potassium, phosphorus, calcium, magnesium levels
   Hypochloremic alkalosis
   Dehydration
   Edema

C. **Renal**
   Increase BUN, decrease GFR
   Partial diabetes insipidus

D. **Endocrine**
   Amenorrhea or irregular menses
   Decreased TSH, T3, T4, LH, FSH, estradiol, somatomedin-C
Increased cortisol, growth hormone, reverse T3
Low bone density (hypoestrogenic state)
Abnormal thermoregulation (hypothermia)

E. Gastrointestinal
Constipation, delayed gastric emptying
Elevated hepatic enzymes
Esophagitis, esophageal tears or rupture
Parotid gland enlargement, parotitis
Elevated amylase, acute pancreatitis
Dental erosions

F. Hematologic
Leukopenia, anemia, thrombocytopenia
Low CRP or ESR

G. Neurologic
Slowed information processing, poor concentration
Peripheral neuropathy
Cerebral atrophy

H. Dermatologic
Lanugo hair, dry skin, brittle nails and hair
Hypercarotenemia, loss of subcutaneous fat
Acrocyanosis, poor peripheral perfusion
Facial petechiae, subconjunctival hemorrhages
Calluses on hands

I. Musculoskeletal
Stress fractures, osteopenia, osteoporosis
Muscle weakness
Dental: enamel erosions, caries, gingivitis, other gum disease

VI. Management: General

A. Rule out organic etiology for the weight loss or other symptoms
B. Diagnose the Eating Disorder
Inform patient and family
Validate the ED as a serious illness
Present the need for multidisciplinary treatment team

C. Restore nutrient deficits and hydration status
In-patient if medically unstable, otherwise out-patient management

D. Psychological evaluation (individual and family issues)

E. Nutritional assessment
F. Long-term medical, nutritional, and psychological interventions

VII. Prognosis

A. Anorexia Nervosa
8–15% mortality rate (highest of any psychiatric illness)
Short-term: One third of patients continue with moderate to severe food restriction
Morbidity: Long-term effects of starvation (fertility, osteoporosis)

B. Bulimia Nervosa
Lower mortality than in Anorexia Nervosa
Short-term: One third to one half of patients continue to have binge/purge episodes
Chronic depression or affective disorders

C. Long-term outcome (7–10 years from onset) with appropriate psychological and nutritional intervention
⇒ 85% of patients recover from their Eating Disorder

VIII. Treatment Goals and Recovery

Re-onset of regular menstrual periods
Maintain a normal weight range
Enjoy a balanced dietary intake
Moderate exercise to promote cardiovascular health and/or participation for enjoyment/relaxation
Develop positive self-esteem and body image
Improve family dynamics and relationships
Adopt long-term healthy behaviors

Resources
Gottlieb L: Stick Figure: A Diary of My Former Self. New York, Simon & Schuster, 2000
www.anad.org
www.nationaleatingdisorders.org