Review of Eating Disorders

NICOLE GREENWOOD MD
ASSISTANT PROFESSOR OF PEDIATRICS LECOM

Objectives

- Review new diagnostic criteria and DSM V changes
- Review clinical presentation and medical complications
- Treatment options available
- When to admit

Epidemiology

- Third most common chronic illness to present in outpatient setting for adolescent girls in USA
- Lifetime prevalence of Anorexia Nervosa (AN) is 0.5%-2% with peak onset of 13-18 (14)
- AN has mortality rate of at least 5%-6% which is the highest among any psychiatric illness

Epidemiology

- Lifetimes prevalence of Bulimia Nervosa (BN)0.9%-3%
- Older age of onset when compared to AN 16-17
- Mortality rates are about 2% but risk of lifetime suicidality and attempts in BN are much higher

Epidemiology

- Eating Disorders (ED) diagnosed predominantly in females but the profile is changing
- Male patients increasing, upwards of 25% cases being male
- Male patients are likely to be younger

Epidemiology

- DIETING behaviors are a risk factor for development of an ED
  - 50% of girls and 25% of boys report dieting in past year
- 30% of girls and 15 % of boys have disordered eating behaviors severe enough to warrant medical evaluation
- 9% of girls and 4% of boys report daily self-induced vomiting

Definition

- DSM V Types
  - **Anorexia Nervosa (AN)**
  - **Bulimia Nervosa (BN)**
  - Binge-Eating Disorder (BED)
  - Avoidant/Restrictive Food Intake (ARFID)
  - Rumination Disorder
  - Pica

Anorexia Nervosa

- DSM IV
  - **Refusal to maintain body weight** at or above a minimum normal weight for age and height or failure to make expected gain during period of growth, leading to body weight less than **85% of that expected**
  - Intense fear of gaining weight or becoming fat, even though underweight
  - Disturbance in the way in which one's body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or denial of the seriousness of the current low body weight
  - **Amenorrhea for 3 months**

Anorexia Nervosa

- DSM V
  - Restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory and physical health
  - Intense fear of gaining weight or becoming fat, or **persistent behavior** that interferes with weight gain, even though at a significantly low weight.
  - Disturbance in the way in which one's body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or denial of the seriousness of the current low body weight

Anorexia Nervosa

- What does this do?
  - Increases applicability - no more ED NOS
  - Males
  - Premenarchal females
  - Postmenarchal females

Psychological Traits of Anorexia

- Anxious
- Low self-esteem
- Rule bound individuals
- Risk averse
- Interpersonal difficulties because of conflict avoidance
- Low expressed emotion

Psychological

- Homogenous state of anxiety
- Gambling Study
  - Looked at skin conductance responses when people lost or won
  - Two groups CW and AN
    - There was a different reaction physiologically for the CW group when they won or lost BUT for AN group they demonstrated similar anxious response (Tchanturia et al 2006)

Psychological

- What does this study illustrate in terms of AN personality?
  - Difficulty differentiating between pleasurable and displeasing stimuli
  - Troubles learning from experience if each is interpreted similarly
  - Cannot work with AN using a reward system, this won't motivate them i.e. I win because I don't want to loose

Psychological

- Findings of Starvation study
  - During 6 months of starvation, the mental state of the men transformed
  - Became obsessed with food, put condiments of food, began smoking, cut food into smaller pieces
  - Demeanors changed
    - Angry, depressed, anxious all day, found pleasure in watching people eat

Psychological

- Mindset and outlook changes in setting of starvation
- Starvation Experiment (ancel keys et al)
  - 40 healthy males
  - First 3 months they observed them
  - For next 6 months they starved them (50% less food than normal)
  - Next 3-9 months restoration

Psychological

- In this study, the behavior and mentality of the subjects mirrored that of AN patients
- Illustrates that the physiology of starvation itself has large role in development of AN and its symptoms regarding food relationship
- It took some men 2 years for their thoughts regarding food to normalize

Bulimia Nervosa

- DSM V
  - Recurrent episodes of binge-eating
    - Eating large amount of food in discrete period of time
    - Lack of control
  - Recurrent inappropriate compensatory behavior to prevent weight gain (vomiting, laxative, exercise, fasting, diuretics)
  - Bing-eating and compensatory behavior occurs at least **once a week for 3 months (DSMIV was twice a week)**
  - Episodes do not occur with AN
  - Self-evaluation unduly influenced by body shape and size

Psychosocial Traits of Bulimia Nervosa

- High anxiety and depression
- Low self-esteem
- Personality disorders diagnosed when older
- Impulse control
  - Substance abuse, cutting

Etiology

- Interface between genetic and biological predispositions, environmental, sociocultural, psychological factors

Psychosocial

- Comorbidities
  - AN anxious then develop depression related to malnutrition
  - BN have both anxiety and depression simultaneously
- AN symptoms based on control, calm, order while BN motivated more by a cultural "look"
- Family style
  - AN perfectionist, high constraint
  - BN families chaos, family history of substance abuse
- Pride vs Shame
  - In AN, this is their identity, ego syntonic while BN feel embarrassed about eating and purging
- Impulsive
  - AN not impulsive, BN quite impulsive

Etiology: Genetics

- Twin studies
  - Heritability of An 33%
  - BN 28-83%
- Family studies show:
  - Female relatives of someone with an ED have 4 times the risk of developing BN and more than 11 times the risk of developing AN than someone without a family history

Etiology: Genetics

- Chromosomes?
  - 7% increased incidence in first degree relatives may be related to 1p (Grice et al 2002)
- Puberty
  - May be an activator (Klump et al)

Etiology: Biological

- Why during adolescence?
  - Body is changing, puberty = stressor
  - Naturally require more food
  - "Experiment" vegetarian, vegan, asserting independence
  - Eating with family less, have different eating schedules

Role of the Primary Care Provider

- Several risk factors can help **identify those at risk** but all adolescents should be screened at each well visit
- Presentation of ED can range from the obvious (weight loss, objective growth charts) to the vague (fainting spells, constipation)
- Goal is **early identification**
  - If diagnosed early, 70% recover
  - Best outcome if diagnosed within 3 years of ED **thoughts**, actions

Eating Disorder Presentation

- Weight loss/Gain
- Growth stunting
- Pubertal delay
- Restrictive eating habits
- Poor body image
- Fainting, abdominal pain, headaches, constipation

Anorexia Screening

- SCOFF
  - Do you make yourself Sick because you feel full
  - Do you worry you have lost Control
  - Have you recently lost more than 14 pounds in a 3 months period
  - Do you believe yourself to be Fat when others say you are thing
  - Would you say that Food dominates your life

Anorexia Screening

- SCOFF only validated in adult population
- When in doubt, go open-ended
  - Ever tried to cut out foods
  - **Dieting?**
  - Wanted to loose weight?

Eating Disorder Evaluation

- Duration of thoughts
- Maximum and Minimum weights
- Menses history, amenorrhea?
- Dietary recall – 24 hour
- Exercise history, laxative, diuretics
- Review of systems
- Drugs, alcohol and family history of substance abuse
- Depression, cutting, suicidal ideation
- History of abuse or other stressors

Physical Exam

System	Physical Findings
Vital signs	Bradycardia, hypotension, orthostatic hypotension, hypothermia
Weight and growth	Body mass index, body weight percentile, growth trajectory changes
Head	Parotid gland swelling; enamel erosion, especially of lingual and occlusal surfaces; dental caries
Chest	Arrhythmia
Abdomen	Palpable stool, bloating, abdominal pain
Extremities	Edema, muscle atrophy, weakness
Skin	Dry skin, hair loss, lanugo, acrocyanosis

Differential Diagnosis

Weight loss
• Celiac disease
• Inflammatory bowel disease
• Malabsorption
• Hyperthyroidism
• Addison disease
• Acquired immunodeficiency syndrome
• Occult malignancies
Vomiting
• Migraine
• Pseudotumor cerebri
• Hydrocephalus
• Central nervous system malignancy
• Gastrointestinal disease
• Cyclic vomiting
Binge eating
• Obesity
• Major depressive disorder
• Borderline personality disorder
• Prader Willi syndrome
• Kleine-Levin syndrome

Evaluation

- First evaluate medical stability and obtain labs
  - CBC, ESR, CMP, UA, Magnesium, TSH, Free T4, Total T3, Phosphate, Utox, EKG, Lipids
  - Vitals – heart rate, blood pressure, temperature, BMI, Ideal body weight
  - Vitals will help determine if patient meets criteria for hospitalization

Medical Complications

- Cardiovascular
  - Decreased cardiac mass leading to poor systolic function and volume depletion
    - Headache, syncope
  - Get blood pressure, orthostatic
  - Heart rate – bradycardia!
  - Prolonged QT – get EKG Chronic purging can lead to cardiomyopathy
  - Pericardial effusions

Medical Complications

- Endocrine
  - AN suppressed hypothalamic with normal to low gonadotropin and sex hormone levels
  - Decelerated linear growth and pubertal delay or regression, menstrual dysfunction
  - Low-normal thyroxine and low T3
  - Reduced low bone density due to nutrition and low fat mass

Medical Complications

- Neurologic
  - Malnutrition changes brain structure and development
  - An have reduced brain tissue volume and impaired neuropsychological functioning
  - Once weight restored can have persistent gray-white matter losses

Medical Complications

- Gastrointestinal
  - Occur due to malnutrition, vomiting, binge eating
    - Delayed gastric emptying, constipation, transaminitis, dyslipidemia, superior mesenteric artery syndrome
    - Hematemesis
    - Always feeling full

Medical Complications

- Electrolytes
  - Vomiting, laxative use
    - Hypokalemia, hypophosphatemia, hypochloremic metabolic acidosis (laxatives), alkalosis (emesis
  - Refeeding syndrome
    - Begin to refeed, phosphate used for ATP
    - Low phosphate, magnesium, potassium levels
    - Approach to feeding – used to be low and slow, study by Garber showed that a higher caloric diet started early results in fewer hospital days

Treatment

- Medical, nutritional, psychological
- Evaluate options
  - Inpatient
    - Medically unstable
  - Outpatient
    - Physician visits, psychologist, nutritionist
  - Partial program
  - Residential care

Admission

Table 5. American Academy of Pediatrics Criteria for Inpatient Hospitalization in Eating Disorders

Anorexia nervosa	Bulimia nervosa
Heart rate < 50 beats/min daytime; < 45 beats/min nighttime	Syncope
Systolic blood pressure < 90 mm Hg	Serum potassium < 3.2 mmol/L
Orthostatic changes in pulse (> 20 beats/min) or blood pressure (> 10 mm Hg)	Serum chloride < 88 mmol/L
Arrhythmia	Esophageal tears
Temperature < 96°F	Cardiac arrhythmias including prolonged QTc
< 75% ideal body weight or ongoing weight loss despite intensive management	Hypothermia
Body fat < 10%	Suicide risk
Refusal to eat	Intractable vomiting
Failure to respond to outpatient treatment	Hematemesis
	Failure to respond to outpatient treatment

Reprinted with permission from Campbell K, Peebles R. Eating disorders in children and adolescents: state of the art review. Pediatrics. 2014;134(3):586.

Treatment AN

- Medical, nutritional, psychological
- Evaluate options
  - Inpatient
    - Medically unstable
    - Correct electrolyte abnormalities
    - Start feeding
    - Therapy
  - **Outpatient**
    - Physician visits, psychologist, nutritionist
  - Partial program
  - Residential care

Outpatient Treatment: Family Based Therapy

- Maudsley Method
  - Phase 1
    - 1-10 sessions
    - Parent in charge of weight restoration
  - Phase 2
    - 11-16 sessions
    - Some control given back to patient
  - Phase 3
    - 17-20
    - Talk about developmental issues

Family Based Therapy

- Agnostic approach to ED
- Empowers the family to refeed their child
- No blame either with family or patient
- FBT has the largest evidence base of any treatment (CBT, IT)

Family Based Therapy

- FBT showed 50% decrease in readmissions (Walls et all 2007)
- RCH Melbourne 56% decrease in admissions, 75% decrease in readmissions, 51% decrease in overall hospital days
- FBT demonstrated lower rates of relapse and reach 95% of expected body weight faster (Locke 2010)

Family Based Therapy

- Traditionally, less than half of AN patients fully recover within 2-5 years, one third partially recover and 20% develop chronic illness
- With FBT, 50%-60% achieve full remission within a year, 25%-35% partially recover, 15% are nonresponsive
- FBT is emerging as First-Line Treatment

Outcomes AN

- Good outcomes with AN associated with:
  - Health parent and child relationship
  - Shorter duration of illness
- Poor outcomes with AN associated with:
  - Purging
  - Significant weight loss
  - Psychological comorbidities
- Patient with AN 5 times more likely to die prematurely
- Better prognosis if identified and treated in Adolescence so RECOGNIZE EARLY AND INTERVENE

Treatment BN

- Medically stabilize
- CBT, FBT
- May need day programs to help break binge and purge cycle
- Medications
  - TCA, Fluoxetine, Topiramate
  - NEVER BUPROPION = Seizures

Outcomes BN

- 33-66% full recovery within 5 years
- Twice as likely to die prematurely
- Worse prognosis associated with
  - More frequent binge and purge cycles
  - Older age
  - Psychological comorbidities

Eating Disorder Goals

- Identify risk factors
- Screen patients, talk about weight and body image
- Identify early to help prognosis
- If diagnosed, ensure medical stability
- Help to organize and coordinate care between therapy (FBT), nutritionist, family and patient