Medical Complications of Eating Disorders
And Nutritional Remedies

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Objectives
• Develop an awareness and understanding of medical complications associated with anorexia, bulimia and diabulimia
• Become familiarized with standard assessments of potential medical complications
• Increase knowledge of inpatient and outpatient eating disorder treatment interventions in a multidisciplinary framework

What causes eating disorders?
Genetics loads the gun......
body type
temperament
linkage on chromosomes
gender

...environment pulls the trigger.

Genetic Social Psychological

Eating Disorders

Psychological

Social

Genetic
Types

- Anorexia
  - Early adolescents
  - Morbid dread of body fat
  - Refusal to maintain body weight
  - DSM changes (2013)
  - Perfectionist/OCD

- Bulimia
  - Later adolescents
  - Failed attempt at anorexia
  - Risk takers
  - Substance abuse
  - BPD

Eating Disorder Not Otherwise Specified

- Most prevalent
- Do not meet strict criteria
- Most common is BED
- Often rejected by insurance companies
- No less serious than AN or BN

BED and Obesity

- Central feature of BED relates to increasing BMI
- Binge Eating occurs in 20-40% of people who are overweight
- Goal: body acceptance
- Proposed to be in DSM V-2013

EDO Classification

- Anorexia: 15%
- Bulimia: 25%
- BED: 10%
- EDNOS: 50%
Facts about Eating Disorders

- Majority of patients are not underweight and most are not seriously physically compromised
- Girls who diet are 12 times as likely to binge as girls who don’t diet
- Almost always come as a ‘package deal’ with one or several comorbid psychiatric diagnoses
- Serve as strategies, or pseudo solutions to deal with a variety of personal conflicts and lack of control for life situations
- Often regarded as separate disorders

Medical Complications

- **Anorexia**
  - Direct result of starvation and weight loss
  - **Prognosis**
    - Long duration of the illness
    - Less favorable outcome
    - Suicide or cardiac deaths

- **Bulimia**
  - Direct result of mode and frequency of purging
  - **Prognosis**
    - Serious complications more likely to occur
    - Higher risk of suicide
    - Poor prognosis with substance abuse, personality disorders

Anorexia in Males

- Morbid fear of becoming fat
- Males diet for different reasons
  - Changing body shape
  - Better sports performance
- Homosexual men have a higher risk
Admission vitals

- Wt: 62 pounds (< 3% CDC growth chart)
- Ht: 157 cm (< 3% CDC growth chart)
- BMI 11.6
- Potassium 5.2
- Phosphorus 3.0
- Magnesium 2.4
- Tums 3000mg daily
- Repleting phos as needed – sodium phosphate

Refeeding Syndrome

- Enteral or parenteral route – refeed too quickly
- Hypophosphatemia, hypomagnesemia, hypocalcemia, and fluid retention
- Dangerous- “start low and go slow”
- 30Kcal/kg initial calories, no more that 250-300Kcal increase once per week
- Evaluate electrolytes at least three times per week
Lab trends

- Blood glucose: 73 mg/dL, Potassium: 4.5 mmol/L, Creatinine: 0.6 mg/dL, BUN: 15 mg/dL, Magnesium 2.1 mg/dl, total calcium 8.6mg/dl

- Phosphorus trends:
  
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Psychological Approaches

- Individuals with eating disorders considered incapable of making choices
- Standard psychological therapies considered ineffective when brain is in a starvation state
- Initial focus on refeeding - Food is Medicine
- Requires help from caregivers, spouses, friends
  - Challenges
  - Research suggests that use of SSRIs is not effective prior to weight restoration

Brain Effects of Starvation

- Keys’ Minnesota Starvation Experiment (1944)
- Severe psychological distress
  - Depression
  - Anxiety
  - Irritability
  - Social isolation
- Decreased concentration, comprehension, judgment
- Increased food preoccupation
Minnesota Starvation Experiment (cont.)

- Humans become more oriented toward food during starvation state (and less driven by other pursuits)
- Did not become obese after study
- Need for very high calorie intake to begin weight gain

Nutritional Interventions for Anorexia

- Focus on foods that do not promote satiety
- Food planning not calorie counting
- Vegetarian food patterns are common
- Nutrient dense foods not calories
- Small frequent feedings to reduce the sensation of bloating

Rule of 3s

- 3 meals per day
- 3 snacks per day
- 3 ounces of protein (2x per day)
- 3 servings of calcium (1500 mg)

Common GI complaints in AN

- Gastroparesis
  - Bloating, feeling overly full
  - Improves once weight restoration begins – often takes 4-6 weeks
- Interventions
  - Using liquid supplements as ½ of calories
  - Taking liquids earlier in the meal, results in less bloating
Constipation

- Reassure patients that there is nothing wrong with their bowels
- Bowel patterns vary
- Interventions
  - Adequate fluid intake
  - Fiber in low doses

Laxative abuse

- Bowel becomes dependent upon laxatives
- Cessation of use causes rebound constipation and fluid retention
- Dilated colon, incapable of passing fecal material
- Laxatives are an ineffective means of achieving weight loss
- Avoid stimulant laxatives that contain senna, cascara, or bisacodyl (Dulcolax) – potential for dependence

Sponge Analogy

Resting Energy Expenditure

- Indirect calorimetry – measures heat production
- Measures a person’s oxygen consumption and carbon dioxide production
- Can provide an estimate of substrate utilization based on the ratio of carbon dioxide produced to oxygen consumed (respiratory quotient RQ)
Interpreting RQ

- The range is from .7-1.0
- If the value is under .7 prolonged starvation
- If the value is over 1.0 excessive calorie consumption

Energy source/condition RQ

- Prolonged ketosis <0.70
- Fat 0.70
- Underfeeding <0.71
- Protein 0.80
- Mixed energy 0.85
- Carbohydrate 1.00
- Fat storage >1.00

Weight Restoration

- Goal is to achieve 90-100% IBW
- Increase calories by 300-400 every 3-4 days until adequate rate of weight is being restored
- Rate of weight gain: 1-1.5 lbs/week (outpt) and 2-3 lbs/week (inpt)

Medical Complications of BN

- Gastrointestinal: Endocrine
- Dental Erosion: Irregular menses
- Parotid Gland Swelling: Metabolic
- Esophageal Rupture: Hypokalemia
- Reflux: Dehydration
- Constipation: Nephropathy
- due to laxative abuse
- Mallory-Weiss tear
- Cardiomyopathy
- Russell’s sign

- Endocrine: Ipecac induced
- Irregular menses: Pulmonary
- Metabolic: Aspiration Pneumonitis
- Hypokalemia: Hypokalemia
- Dehydration: Nephropathy
- Nephropathy: Nephropathy
- Hypokalemia: Nephropathy
Hypokalemia

- Found in 1/3 of all patients with EDO in the hospital
- Result of chronic purging
- Laxatives – potassium loss in the stool
- Diuretics
  - Ammonium chloride
  - Thiazides

Food Records/Clue Sheets Help Identify

- Patterns of irregular eating
- Triggers of restricting, binges, and purges
  - Thoughts
  - Situations
  - EDO behaviors
- Set specific goals to normalize eating
- Increases self-awareness

Meal Planning for Bulimia

- Small frequent meals
- Small to provide comfortable volume
- Frequent to prevent binging every 4-6 hours
- Include protein and carbs at each meal

Meal Planning for Bulimia

- Patients feel restricting is essential to weight loss – encourage regular eating
- Wait 30 minutes after meal to purge
- Encourage a calm eating environment, any stress can result in binging/purging
- A structured meal plan can help do not include foods pt is unwilling to eat or able to keep down
- Carbonated beverages should be limited
Terry Schiavo

- Nations longest right to die case
- Desperately wanted to be thin
- Stopped menstruating and went to seek medical help
- No complete medical history taken
- Heart stopped due to a potassium imbalance – bulimia
- Malpractice lawsuit was filed – “medical negligence”

Diabulimia

- This struggle to maintain control can become the introduction to developing an eating disorder for a diabetic
- This issue of control is of special importance for adolescent diabetics.
- Mortality rate – 3 times at high
- Nearly 7% of youth with AN or BN are diabetic

AHEAD survey

- Screens for disordered eating behaviors and Type I diabetes
  - Out of 143 adolescents with type I diabetes
    - Nearly 40% females and 16% males engaged in unhealthy weight control practices
    - Of the females, nearly 18% skipped or reduced insulin to control weight

Mollie

- 14 year old female, Caucasian
- Diagnosed with Diabetes at age 4- insulin pump
- Family characteristics
- Presentation to Psych
Time line

- age 17 - admitted for inpatient treatment of eating disorder symptomology
- Cutting
- Concerned with appearance, wanting to lose weight
- Binging and purging, using laxatives
- Restricting her insulin dosing
- Depressive symptoms, thoughts of suicide

“Under control” can lead to “Out of control”

- Only one visit with the RD, not motivated to follow through on any recommendations
- Endo visit- A1c – 12%, hope that with EDO treatment she may become more motivated to control her diabetes
- Psych visit – eating disorder out of control- admitted to 2nd EDO treatment
Subsequent visits

- Quit seeing the RD – does not feel it is helpful
- Off of the insulin pump and now taking injections
- A1c – 11.8%
- Numerous ER visits for elevated BS 571
- DKA
- Left AMA

Eating Disorder?

- Fluctuating blood sugars
- Frequent Hypoglycemia
- Frequent Hyperglycemia
- High hemoglobin A1C
- Increase in insulin adjustments
- Hypokalemia
- Hyponatremia
- Decline or stall linear growth
- Preoccupation with food /weight
- Labs may be normal
What works?

- Find out what motivates the individual-social
- Physical- height
- College admission
- Muscle mass
- Pregnancy
- Empowerment

SCOFF Questionnaire

- Do you make yourself Sick because you feel uncomfortably full?
- Do you worry you have lost Control over how much you eat?
- Have you recently lost more than One stone (14 lb) in a 3-month period?
- Do you believe yourself to be Fat when others say you are too thin?
- Would you say that Food dominates your life?

Family Therapy

“When families reject psychological treatment, recovery from diabulimia can be delayed”

- Family dynamics contribute significantly to eating disorders, the families way of perceiving and dealing with the maladaptive behavior may be counterproductive, and may reinforce it.
- Looking at individual issues without considering their relationships within the family system misses important etiologic and maintaining factors of dysfunctional behaviors

– Eating disorders often lead to serious medical consequences that can be life threatening
– It is critical for patients to receive ongoing medical assessment and intervention, which should take precedent over nutritional and psychological interventions
– Due to the complexity of eating disorders, a multi-disciplinary approach is imperative, including psychologists, physicians and dietitians
Eating Disorder Resources


Resources

- Shih, G. Diabulimia: what it is and how to treat it. 2011.