Bulimia Nervosa

Background

1. Definition: Abnormal eating behavior associated with fear of gaining weight.
2. General Information: Constant self-evaluation distorted; exaggerated ideals of body shape and weight; recurrent binge eating due to emotional distress and loss of self-control.

Pathophysiology

1. Pathology of Disease
    - Two variants:
        - Purging- self-induced vomiting or excessive ingestion of laxative.
        - Nonpurging- obsessive compensatory measures to lose weight (excessive exercise, stimulant use, and/or fasting).
2. Incidence, Prevalence
    - Prevalence (U.S.) of bulimia nervosa -1%.
    - Lifetime prevalence 0.5% for males and 1.5% for females.[1]
    - Female-to-male ratio 10:1.
    - Mean age of onset -19.7 years.
        - Higher incidence in athletes/dancers
3. Risk factors
    - Comorbidity of any psychiatric disorder (94.5%)[1]
    - Affective Disorders, e.g.- Major depressive disorder, Bipolar II
    - Anxiety Disorders, e.g.- OCD, GAD, PTSD, phobia
    - Substance Abuse Disorders, e.g.- alcohol/nicotine/drug dependence
    - Impulse Control Disorders, e.g.- compulsive buying, kleptomania
    - Other psychopathology
    - Attention Deficit Hyperactivity Disorder
    -
        - sexual abuse
        - borderline personality disorder
        - obsessive compulsive personality disorder (perfectionism)
    - Family history
        - eating disorders
        - anxiety disorders
        - mood disorders
        - alcohol or substance abuse
4. Morbidity/Mortality
    - All cause mortality rate 3.9%
    - Increased risk of suicide attempts and ideation[2]
    - Standardized mortality ratio with respect to suicide: 6.51.[3]
    - Comorbidities greatly heightened with above risk factors.

Diagnostics

1. History
    - Presentation generally delayed for months to years
    - Patients often secretive
    - Struggles with food often hidden.
    - Body image often distorted

- Fear of weight gain
- Frequent self-weighing
- Ideal weight, body shape, and size distortion
- Often present for other reasons:
  - Anxiety
  - Depression
  - Fatigue
  - Bowel irregularities, bloating, constipation
  - Menstrual irregularities
- A diet/exercise history may show:
  - Binge episodes- increased ingestion of calories, up to ten or more times the recommended daily calorie allowance
    - At least2000 calories
    - Not just consumption of small amounts of "forbidden foods"
    - Not just grazing throughout day
    - Not explained by socially sanctioned excess (e.g., holiday meals)
    - Eating continues until person uncomfortably full
    - Eating speed typically increased during binge
    - Usually lacks food enjoyment during binge
    - Patients often feel "out of control" during binge
    - Binge behavior often hidden (evidence of binge- food debris, leftovers, empty containers- hidden from others, binge stops if others enter room, etc.)
  - Compensatory behaviors- exercise for multiple hours/daily; excessive laxative use; self-induced vomiting; use of diuretics, enemas, or thyroid preparations in attempt to control weight
  - Dietary restrictions- avoidance of high calorie foods, except during bingeing episodes; deep remorse when eating more than would like; often use appetite suppressants
    - Patients often have "forbidden foods" (foods they only allow themselves to eat during binges)
  - Cyclical pattern of exercising
    - usually correlates with the self-reported purging (or non-purging) episodes
  - Cyclical pattern of bingeing
    - Caloric restriction/dietary restraint → binge → compensatory behavior (purging, laxative use, excessive exercise)
    - Other triggers for bingeing include interpersonal stress and dysphoria

2. Physical Examination:
   - Bilateral parotid enlargement
   - Erosions of lingual teeth surfaces , loss of enamel, dental caries.
   - Cutaneous manifestations: Russell sign (callosities, scarring, and abrasion on knuckles); telogen effluvium; acne; xerosis; nail dystrophy; scarring from cutting, burning, or other self-induced trauma.
   - Body habitus:
     - Generally within normal weight range

        - Can include obesity, excessive fat folds, striae, and stasis pigmentation.
    - Bradycardia or tachycardia
    - Hypothermia
    - Hypotension
    - Edema of the feet and hands
3. Diagnostic Testing:
    - No specific test can reveal diagnosis; however certain clinical assessments are highly useful, in particular the SCOFF and ESP questionnaires.
        - SCOFF mnemonic[4]: identifies patients who need further evaluation.
            - Do you make yourself **sick** because you feel uncomfortably full?
            - Do you worry you have lost **control** over how much you ate?
            - Have you recently lost **one** stone (~14 lbs) 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?
        - Interpretation: a "yes" to two or more questions was associated with a 100% sensitivity and 87.5% specificity for diagnosis of an ED. [4]
        - Eating Disorder Screen for Primary Care (ESP)[5]: screening tool for patients suspected of having an eating disorder.
            - Are you satisfied with your eating patterns?
            - Do you ever eaten in secret?
            - Does your weight affect the way you feel about yourself?
            - Have family members suffered from an eating disorder?
            - Do you currently suffer with or have you in the past suffered with an eating disorder?
        - Two abnormal responses had a sensitivity of 100% and specificity of 71 %.[5] It is of note that both instruments need further validation in future studies.
4. Laboratory evaluation:
    - CBC: exclude anemia or other hematologic abnormalities
    - BMP: hypokalemia, hyponatremia, hypocalcemia, hypophosphatemia, hypomagnesemia, elevated BUN
    - UA: specific gravity (elevated in dehydration, lower in water over-load)
    - Urine toxicology: comorbid substance abuse
    - Pregnancy test
    - Amylase: hyperamylasemia (30%)
5. Diagnostic Imaging:
    - No indication.
6. Other Studies:
    - ECG to rule out arrhythmia and cardiomyopathy
    - DEXA scan to rule out osteoporosis
    - Routine neuropsychological testing not indicated, except when learning impairment history or abnormal mental status testing found
7. Diagnostic Criteria- DSM-IV:

"1. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

Eating, in a discrete period of time (eg, within any 2-h period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances

-AND-

A sense of lack of control over eating during the episode (eg, a feeling that one cannot stop eating or control what or how much one is eating)

2. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

3. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.
(May be reduced to 1 time per week in DSM V)

4. Self-evaluation is unduly influenced by body shape and weight.

5. The disturbance does not occur exclusively during episodes of anorexia nervosa."[6]

Differential Diagnosis

1. Key Differential Diagnoses:
    - Anorexia Nervosa
    - Binge Eating Disorder
    - Body Dysmorphic Disorder
    - Obsessive Compulsive Disorder
    - Obesity
    - Depression
2. Extensive Differential Diagnoses:
    - Gastric Outlet Obstruction
    - Insulinoma
    - Kleine-Levin Syndrome
    - Kluver-Bucy Syndrome

Therapeutics

1. Acute Treatment
    - Initial care requires an interdisciplinary approach.
    - Team members should include:
        - primary care physician
        - psychiatrist
        - psychotherapist
        - registered dietitian
        - dentist (if warranted)
    - Family members should be discouraged from engaging in food-related battles; rather use behavior contingent weekly rewards
    - The APA practice guidelines[7] for eating disorders are outlined below:
        - Level 1: Outpatient:
            - usually self-sufficient
            - fair-to-good motivation

        - can manage compulsive exercising through self-control
    - Level 2: Intensive Outpatient:
        - some degrees of external structure beyond self-control required
        - fair motivation
    - Level 3: Partial Hospitalization (Full-Day Outpatient Care):
        - partial motivation
        - cooperative
        - preoccupied with intrusive, repetitive thoughts > 3 hours/day
        - others able to provide limited support and structure
    - Level 4: Residential Treatment Center:
        - needs supervision at all meals or will restrict eating
        - medically stable (i.e.- no need for nasogastric tube, daily labs, intravenous fluids, etc.)
        - patient cooperative in highly structured environment
        - poor motivation
    - Level 5: Inpatient Hospitalization:
        - Anyone with electrolyte imbalances (hypokalemia, hypophosphatemia, hypomagnesemia), arrhythmias, hypotension, specific plans for suicidality
        - needs supervision during and after meals
        - environmental stressors too difficult to manage.

2. Further Management/Complications to watch for:
    - <u>Psychiatric:</u>
        - Depression (suicidal thoughts or self-injury)
        - Poor impulse control (e.g., substance abuse, sexually transmitted diseases, unintended pregnancy, accidental injuries).
    - <u>Medical:</u>
        - Esophageal: Mallory-Weiss tear, esophageal rupture, reflux esophagitis
        - Electrolyte imbalances: hypokalemia (metabolic alkalosis), hypo/hypercalcemia (destabilizecardiac cell membrane)
        - Cardiac: cardiomyopathies
        - Gastrointestinal (usually due to laxative abuse): acute gastric dilatation, chronic constipation, pseudo-Hirschprung syndrome, melanosis coliwith increased risk for colon cancer, steatorrhea
        - Musculoskeletal: exertional rhabdomyolysis, osteopenia, osteoporosis
        - Reproductive: menstrual irregularity, infertility

3. Long-Term Care
    - **Non-pharmacologic Interventions:**
        - Cognitive Behavioral Therapy (CBT)
        - Interpersonal Psychotherapy (IPT)
        - Nutritional Rehabilitation Counseling
        - Family Therapy
        - Individual Therapy
        - Couples Therapy
        - Self-help and Support Groups
        - Bright light therapy

        - Guided Imagery
    - **Pharmacologic Interventions:**
        - SSRIs- fluoxetine (FDA approved), sertraline, fluvoxamine, citalopram
        - TCAs and MAOIs are not recommended
        - Bupropion is contraindicated due to high risk of seizure.
        - Mood Stabilizers: topiramate useful for short-term treatment of binge
        - eating disorder; may be efficacious long term.[8]
        - Lithium and valproic acid unacceptable alternatives.
        - Clinical trials being conducted on baclofen, antiandrogenic OCPs,ondansetron, and naltrexone.

Follow-Up

1. Return to Office
   CBT is single-most well studied and effective treatment for bulimia
    - Goal is to identify and correct maladaptive thoughts and behaviors
        - Psychotherapy alone has not proven to change body weight.[9]
    - Remission rates highest when CBT combined with antidepressants
        - Addition of fluoxetine indicated[8] when therapy alone does not result in substantial reduction of symptoms after ten sessions
        - Antidepressant therapy should last 9 months to 1 year
    - Motivational interviewing techniques can be useful for patients not ready to address their disordered eating
2. Refer to Specialists:
    - Psychiatrist
    - Psychologist/Social Worker
        - Find a CBT therapist http://www.abct.org/Members/?m=FindTherapist&fa=FT_Form&nolm=1
    - Registered Dietician
        - Search for a Dietician with specialized training in helping eating disordered patients
    - Dentist
    - Surgeon (in cases of emergency)
3. Admit to Hospital
    - Refer to APA practice guidelines, level five[8.]

Prognosis

1. Variable
2. Diagnosis not stable over time[10]
3. Poorer outcomes with psychiatric co-morbidity, especially self-injurious behaviors.[11]
4. BN is eating disorder with highest probability of remission *after* ten years.
5. With CBT and maintenance treatment, as many as 50% of patients with bulimia nervosa are asymptomatic 2-10 years after completing treatment.

Prevention

1. No sure preventive strategy

2. School-based programs emphasizing healthy nutrition, lifestyle and self-image may be beneficial
3. Avoiding food based punishment or reward for children recommended
4. Use well-child checkups to identify children at risk due to altered eating habits or preoccupation with weight/size

Patient Education

1. Plethora of educational sources for patients. Patients/families should be warned about the so-called "Pro-Ana" and "Pro-Mia" sites;these support disordered eating behavior and provide unhealthy tips/tricks to avoid treatment adherence.
2. NIH
    - http://www.nlm.nih.gov/medlineplus/ency/article/000341.htm
    - http://www.womenshealth.gov/publications/our-publications/fact-sheet/bulimia-nervosa.cfm
    - http://www.nimh.nih.gov/health/publications/eating-disorders/complete-index.shtml
3. National Eating Disorders Association
    - http://www.nationaleatingdisorders.org/nedaDir/files/documents/handouts/Bulimia.pdf
4. AAFP "How do I know if I have an eating disorder"
    - http://www.aafp.org/afp/2003/0115/p311.html

References

1. Hudson, JI, Hirpi, E, Pope, HG, et al. The Prevalence and Correlates of Eating Disorders in National Comorbidity Survey Replication.*Biol Psychiatry*. 2—7;61:348-358 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1892232/?tool=pubmed.
2. Fedorowicz VJ, Falissard B, Foulon C, et al. Factors associated with suicidal behaviors in a large French sample of inpatients with eating disorders. *Int J Eat Disord*. Nov 2007;40(7):589-95http://onlinelibrary.wiley.com/doi/10.1002/eat.20415/pdf .
3. Crow, SJ, Peterson CB, Swanson, SA. Increased Mortality in Bulimia Nervosa and other Eating Disorders. *Am J Psychiatry*. 2009;166:1343-1346. http://www.ncbi.nlm.nih.gov/pubmed?term=Crow
4. Morgan JF, Reid F, Lacey JH. The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ*. Dec 4 1999;319(7223):1467-8. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC28290/
5. Cotton MA, Ball C, Robinson P. Four simple questions can help screen for eating disorders. *J Gen Intern Med*. Jan 2003;18(1):53-6. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1494802/
6. American Psychiatric Association. *American Psychiatric Association.Diagnostic and Statistical Manual of Mental Disorders, Text Revision*. 4th ed. Washington, DC: 2000.http://www.behavenet.com/capsules/disorders/bulimia.htm http://www.psych.org/MainMenu/Research/DSMIV.aspx
7. Treatment of patients with eating disorders,third edition. American Psychiatric Association. *Am J Psychiatry*. Jul 2006;163(7 Suppl):4-54. http://www.ncbi.nlm.nih.gov/pubmed/16925191

8. Arbaizar, B, Gomez-Acebo, I, Llorca, J. Efficacy of Topiramate in bulimia nervosa an binge-eating disorder: a systematic review.*General Hospital Psychiatry*. 2008;30:471-475. http://www.ncbi.nlm.nih.gov/pubmed?term=Arbaizar
9. Psychotherapy for bulimia nervosa and binging, Volume 1 [database online]. The Cochrane Database of Systematic Reviews: The Cochrane Library, The Cochrane Collaboration; 1998. http://www.ncbi.nlm.nih.gov/pubmed/12535397
10. Fichter MM, Quadflieg N. Long-term stability of eating disorder diagnoses. *Int J Eat Disord*. Nov 2007;40 Suppl:S61-6 .http://onlinelibrary.wiley.com/doi/10.1002/eat.20443/pdf
11. Fichter, MM, Quadflieg, N, Hedlund, S. Long Term Course of Binge Eating Disorder and Bulimia Nervosa: Relevance for Nosology and Diagnostic Criteria. *Int J Eat Disorders*. 2008;41:577-586. http://www.ncbi.nlm.nih.gov/pubmed?term=Fichter%2C%20MM%2C%20Quadflieg%2C%20N%2C%20Hedlund

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