Addiction and Obesity
Reality and Recovery

Objectives

- Provide evidence of addiction to some food as a causative issue with some obese patients.
- Discuss the role of addiction model in treating obesity, including the role of surgery as an intervention in the addiction process, and the role of support groups/therapy.
- Discuss prior recovery efforts for other addictions and their role in obesity treatment.
- Introduce the audience to patients.

Grand Rounds

The Basics

- 30% of population is overweight/obese
- Oregon children, for the first time are expected to have a shorter lifespan than their parents
- Every year: 37,000 additional Oregonians become overweight/obese. YIKES!!
- Obesity costs Oregon $781 million/year
- Since 1970, Oregonians have doubled soft drink consumption: 24 to 53 gallons!
Stats

- Long term success of diet and exercise is 2%
- Long term success of bariatric surgery is 80%
- Mortality reduced
- Diabetes, hypertension, sleep apnea reduced by those 75%

Why Addiction? This is supposed to be surgery

- 15-20% of bariatric surgery patients regain significant weight.
- Addiction transfer occurs but is probably less common than failure to address the primary addiction.
- Sugar/processed carbohydrates is most common

Question

- Why do I eat when I am already full or when I am not hungry?
- Answer
  - I don’t feel good until I eat, and when I eat sugar I feel best.

Addiction

- Loss of control
- Compulsive Intake
- Shorter acting agents create greater craving and seeking behavior
- Withdrawal
- Consequences
- Dopamine levels and receptors are diminished in the brain: Reward Deficiency

The Addiction Cycle

- It starts in the mind
- It creates a physical response
- It changes how we think
- It changes the brain
- It changes how we feel
- It changes our behaviors
**Dopamine**

- [Image of brain scan]
- [Graph: D2 Receptor Availability]
- [Image: Brain activity in response to dopamine release]

**Obesity vs Cocaine**

- Cocaine addicted rats choose sugar over cocaine
- Brains of obese individuals are similar to other addicts with respect to DA receptors
- This is your brain on sugar (if you have the disease of obesity)

**Bingeing**

- 33% of the adult population is overweight/obese
- Binge-eating, 3 or more of the following:
  - Eating until uncomfortable
  - Eating large amounts when not hungry
  - Eating more rapidly than normal
  - Eating alone because of shame
  - Disgusted, depressed, guilty
  - Anxiety about the binging
  - It is a continuum

**Palatable Foods**

- Foods high in fats, sugars, or both
- All the physiological signs of addiction are present in rats that binge, especially with sugar
- Excessive intake, craving, withdrawal symptoms, increased intake of sweet palate, increased extracellular DA
- Sugar binging not related to increased weight but the diet that is usually present does lead to obesity
- More food intake because...
- "A reward" system which is...
  - Satiation blunted, hunger enhanced
  - Insulin resistance
  - Leptin resistance
  - Glutamate augmentation
  - Coming back for more to be gratified
  - Not to deal with energy deficits
Normal Hunger/Satiety

- Hunger
  - Ghrelin, Neuropeptides YK, orexins, DA
- Satiety
  - GLP-1, CCK, leptin, insulin
  - Work by blunting hunger signals

Standard vs Palatable Food

Hunger/Satiety Cycle at Chili’s (Highly Palatable Foods)

- More food intake because...
- "Reward-Eating" stimulated which is...
- Satiety blunted, hunger enhanced
- Coming back for more to be gratified and not

They Know This at Chili’s

- Fast food is ultra palatable, processed and extremely tasty. This is processed food.
- Chewing optional
- Chili’s Texas Cheese Fries w Ranch
  - Designed by a scientist in Dallas
  - Irresistibility is the aim
  - Multiple kinds of sugar and fat, every thing soft
  - 2030 calories!!
Read This

The end of overeating.
Judy Nettles and the University of Michigan Department of Nursing

Editorial Comment

- The food supply is unsafe
- This is not simply an issue of individuals over-eating "normal food"
- The species has never seen caloric density like this
- The food supply is not what you think it is
- Processed carbohydrates are addictive
- Humans (and pets) should avoid the middle of the grocery store

Bariatric Surgery

- What about addiction transfer?
- No prospective prevalence data is available
- Patients are more sensitive to alcohol
- 7199 drugtreatment center admissions 2006-2009
  - 2-6% had history of bariatric surgery
  - Incidence rose steadily over the four years
  - In the control group, 6% had bariatric surgery which had not been reported
Addiction Transfer

- Some bariatric surgeons question the concept of “food” addiction
- Data is sparse
- Patients in my office routinely identify with the concept of addiction, eating to feel better/different
- Over 90% identify carbohydrates or fat/carbs as their food of addiction

Addiction Model

- I ask patients about why they eat, whether they feel stuck or overwhelmed, etc
- What is the psychological motivation?
- Lack of connection
- Shame
- Habit
- Why don’t diets work?
- Why do we as physicians continue to use them?
An Aside
A Plea for Early Treatment

- Longer duration of co-morbidities is associated with less robust response to surgery—waiting until the patient is 60 and miserable is a disservice.
- FDA has approved gastric banding device for use in patients with BMI of 30 with co-morbidities.
- In other words, BMI is not the issue. The co-morbidities are the issue.
- New terminology: metabolic failure with obesity as one component and surgery is a prominent and effective treatment.
- New directions: a metabolic index is being developed that incorporates risk with respect to co-morbidities.

Who Succeeds After Bariatric Surgery

- Up to 20% of patients regain weight.
- Success
  - Support group attendance
  - Surgeon appointment within the last year
  - Support system in place
  - High physical activity
  - High self-esteem
  - Being unmarried
  - Low binge eating scale