

Treatment Protocols: Bariatric Patients During Mass Causality Event

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Objectives

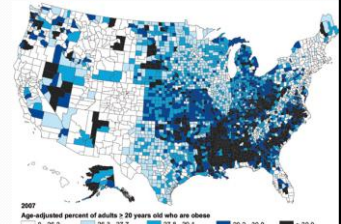
- APPRECIATE how significant the problem of obesity is in disaster situations
- DISCUSS risks to rescuers and health care workers
- OUTLINE physiological needs of bariatric patients
- EXPLORE the practical aspects of bariatric casualty care

Trends in Bariatrics

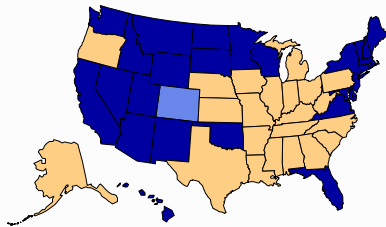
- People in the US are getting bigger and heavier
- Health care industry has been adapting – new bariatric equipment
- New medical and surgical treatment regimes are emerging – less invasive bariatric surgery

Statistics

- More than 50% of Americans are obese
- At least 5% are morbidly obese
- From 1990 – 2000 the number of bariatric procedures increased 6 fold



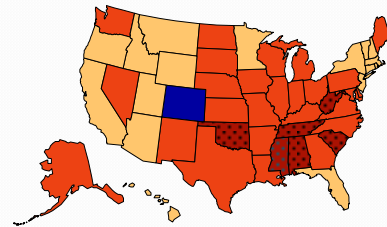
Obesity Trends in US - 2000



No Data <10% 10%–14% 15%–19% ≥20%



Obesity Trends in US - 2008



No Data <10% 10%–14% 15%–19% 20%–24% 25%–29% ≥30%



Definitions

- A bariatric patient is defined as a patient with
 - A weight > 160 kg
 - A BMI > 40



Obesity Impacts all Body Systems

- Respiratory
- Cardiovascular
- Neurological
- Gastrointestinal
- Metabolic
 - Demands are ↑ however most do not have proper balanced nutritional intake
- Integumentary
 - ↑ incidence of skin break down and infections

Respiratory

- ↑ neck tissue and short necks can make intubation and surgical airway placement very difficult
- Added weight to the chest wall can impede respirations, unable to tolerate supine position
- Tidal volume and function reserve capacity are dramatically ↓
- ↑ risk of aspiration R/T ↑ incidence of GERD R/T ↑ abdominal adipose tissue
- Chronically have ↑ CO₂ levels and ↓ O₂ levels related to hypoventilation



Cardiovascular

- Typically have pulmonary hypertension and right sided heart failure
- Direct relationship between stroke volume and cardiac output and body adipose tissue
 - ↑ incidence of left ventricular hypertrophy
- ↑ risk of DVTs
- Vascular access can be challenging



Neurological and GI

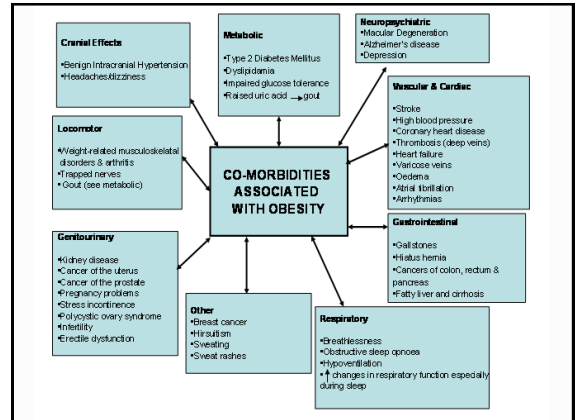
- Neuro
 - Most patients have a h/o sleep apnea and tend to fall asleep often
- GI
 - Difficult to assess bowel sounds
 - ↑ incidence of vomiting and aspiration
 - ↑ incidence of incontinence R/T ↑ intraabdominal pressure from added weight

Bariatrics and Pharmacology

- Volume of distribution (V_d) of lipophilic drugs is altered, leads in accumulation of medication
 - Increases the dose necessary to gain effect
 - Prolongs the elimination half-life, can lead to toxicity
 - Lipophilic Medications – most based on Actual Body Weight (ABW)
 - Propofol – base on ABW
 - Fentanyl – base on Ideal Body Weight (IBW)
 - Benzodiazepines – Single dose based on ABW, Infusions based on IBW

Bariatrics and Pharmacology

- Dosing for hydrophilic medications should usually be based on IBW
- Neuromuscular blockade
 - Vecuronium - should be based on IBW
 - Atracurium - should be ABW



Limitations of Care

- Diagnostic Limitations
 - X-Rays may not be reliable to assess for critical problems
 - Most CT scanners have a weight limit of ~150 kg
 - Ultrasound maybe not be effective R/T ↑ adipose tissue
 - Size usually prevents the use of DPL
- Transport
 - Most EMS and hospital stretchers have limits and can not accommodate severely obese patients safely
 - Some patients may exceed the Gross Vehicle Weight (GVW) of some ground ambulances
 - Weight is a limitation for some aircraft

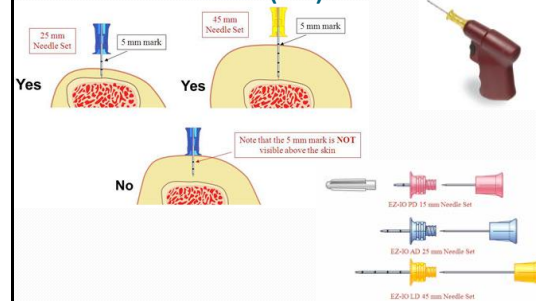


Medical Equipment

- As the patients get larger, so does the equipment needed to manage them
 - Stretchers
 - Commodes
 - Mechanical Lifts
 - Transfer Assist Devices
 - Transport Equipment



Intra-Osseous (IO)



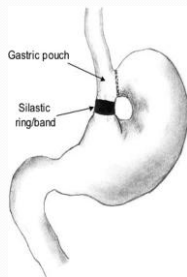
Bariatric Procedures

- Vertical Banded Gastroplasty
- Gastric Banding
- Gastric Bypass
- Biliopancreatic Diversion

Vertical Banding

- A small gastric pouch (30-50 ml) is created with a small gastric outlet
- The pouch is created by stapling the front wall of the stomach to the back below the gastroesophageal junction
- Lower success rates and has lost favor in the U.S.

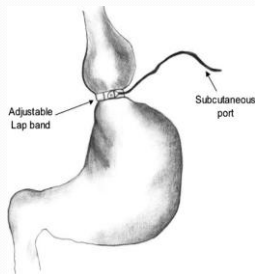
Vertical Banding



Gastric Banding

- A band is placed below the gastroesophageal junction to restrict oral intake
- Gives the patient the sensation they are full
- Newer techniques involve the use of an adjustable band
 - A port is placed in the subcutaneous tissue that allows fluid to be moved into or out of the band to adjust the amount of the "banding"

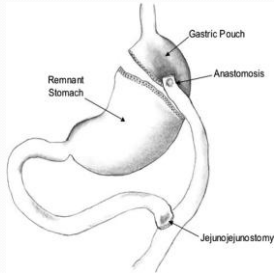
Gastric Banding



Gastric Bypass

- Roux-en-Y gastric bypass is the most common procedure, ~70% of all bariatric procedures
- A small gastric pouch (15-50 ml) is created and it then bypasses the distal stomach, duodenum, and upper jejunum and is anastomosed to the mid-jejunum
- This technique leads to malabsorption of nutrients
- Patients may experience "dumping syndrome"

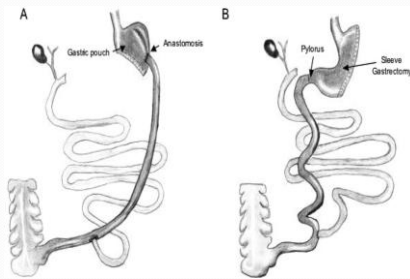
Gastric Bypass



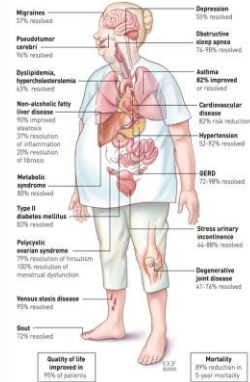
Biliopancreatic Diversion

- A two-component procedure
 - A limited gastrectomy
 - A creation of a long-limb Roux-en-Y anastomosis
- The anastomosis occurs ~ 250 cm from the ileocecal valve
- There are 2 versions

Biliopancreatic Diversion



Co-morbidity Reduction After Bariatric Surgery



Thank You



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