Assessment, Treatment, and Transport of Morbidly Obese Patients

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Case Study: Lacy

- 9-1-1 call for non-emergent lift assist
- 36 year old female
- Trip and fall
- 500 pounds
- Recent hospitalization for skin infections
- Diabetic and hypertensive

Introduction

- Average plane passenger weight increase
- Obesity epidemic
- Definitions and strategies to assess, treat, and transport
Objectives

- Define overweight, obese, and morbidly obese
- Explore health consequences of obesity and morbid obesity
- Understand assessment challenges and treatment strategies
- Explain lifting, moving, and extrication complications

Objective 1: Definitions

Obesity Trends Among U.S. Adults

Percentage of Obese Adults

BMI > 29 1986-2003
- No Data
- 10%-14%
- 15%-19%
- 20%-24%
- >25%

Adapted from CDC’s Behavioral Risk Factor Surveillance System
Trends and Statistics

- Increasing rate of obesity
- 1 in 80 men > 300 pounds
- 1 in 200 women > 300 pounds
- Obesity kills 300,000 Americans

Overweight

- 60% of Americans
- Excess bodyweight
  - Muscle
  - Bone
  - Water
  - Fat

Body Mass Index

\[
\text{Body Mass Index} = \frac{\text{Weight in Kilograms}}{\text{Height in Meters Squared}}
\]
Obesity

- Excessive body FAT
- 25% of Americans
- Greater occurrence in minorities
  - 36% of Caucasian women
  - 47% of Mexican-American women
  - 48% of African-American women

Body Fat Functions

- Energy storage
- Heat retention
- Shock absorber

Over Consumption

Calorie intake exceeds metabolic energy demand
Obesity Causes

- Genetics
- Environment
- Mental Health
- Diseases
- Medications

Morbid Obesity

- 100 pounds over ideal body weight
- BMI > 40
- Stronger genetic influence
- Causes serious illness and disease
- Compromises mobility, personal hygiene, and other daily life tasks

Childhood Obesity

- 15% of children and adolescents
- Obesity increasing in preschoolers
- Same causes as adults

Picture has been removed.

Less kids playing soccer, more kids playing video games
Objective 2: Health Consequences

Morbid obesity has a negative impact on ALL body systems

Adverse Impacts

- Mechanical
  - Restricts ventilation
- Metabolic
  - Inhibits muscle use of glucose
- Physiological
  - Fatty tissue perfusion

Medical Conditions

- Hypertension
- High cholesterol
- Type 2 (non-insulin dependent) diabetes
- Insulin resistance and glucose intolerance
- Coronary heart disease
- Angina pectoris
- Congestive heart failure
- Stroke
- Asthma
- Gallstones
- Gout
- Osteoarthritis
- Obstructive sleep apnea
- Bladder control problems
- Kidney failure
- Depression, eating disorders, distorted body image, and low self-esteem
Respiratory

- Poor ventilation and tidal volume
- Abdominal tissue can crush alveoli
- Risks—chronic respiratory distress, PE, DVT, asthma, sleep apnea

Heart Disease

- 6 times more likely to develop heart disease
- 22 pounds of fat increases heart attack risk by 25%

Hypertension

- 6 times more likely to develop high blood pressure
- 10 kg weight gain leads to a 2.3 mmHg increase in diastolic BP
Diabetes

- Most diabetics are overweight
- 54% of diabetics are obese
- Diabetes complicates all obesity related health problems

Musculoskeletal

- Weight stresses joints
- Significant strain on spine
- Chronic back pain
- Fall related injuries
- Sedentary lifestyle
- Rely on mobility aids

Cellulitis

- Infection likely in skin folds or difficult to reach places
- Result from poor personal care and poor peripheral circulation
Depression

Thermoregulation
- Fat inhibits radiant heat loss
- Patient is poorly hydrated
- Medications alter heat response

Blunt Trauma
- Higher mortality rate
- More injury complications
- Longer hospitalization
Objective 3: Assessment and Treatment

Scene Size-up

- Anticipate challenges
- Additional resources
- Building modification
- NOI/MOI

Initial Assessment: Airway

- Open airway
  - Head-tilt chin lift or jaw thrust
  - Support with pillows or towels
- Head weight, tongue size, bull neck complicate management
Initial Assessment: Airway

- Difficult to position head
- Landmarks obscured by tissue
- Large chest interferes with laryngoscope blade
- Straight blade more effective
- Retract cheek and reduce cricoid pressure
- Confirm tube placement
- Alternatives ready if intubation fails

Initial Assessment: Breathing

- Assess breathing and initiate O2
- Breath sounds distant or muffled
- Sitting upright is position of comfort
- Reassure and coach
- Bag-valve-mask ventilation

Initial Assessment: Circulation

- Check for severe bleeding
- Pulse
- Skin color, temperature, moisture
- Chest compressions
Initial Assessment: Circulation

- Sensitive veins—slower insertion to avoid "blowing" vein
- Difficult to locate a vein
- Know vein anatomy
- Broader tourniquet
- Stabilize vein
- Select gauge appropriate for problem

Debris Management

FHPE: Patient History

- Additional SAMPLE questions
  - Activity tolerance
  - Recent weight change
  - Weight control methods, surgery, or meds
  - Recent hospitalization
  - Wounds or infections
  - Home health care
FHPE: Physical Exam

- Look, listen, and feel for injuries
- Fat obscures landmarks and injuries
- Examine body surface
- Document findings
- Extremity CSM check

FHPE: Vital Signs

- Above normal resting heart rate and respiratory rate
- Consider relative change

Diagnostic Devices

- BP cuff
- Blood sugar
- Pulse oximetry
Pharmacokinetics

- Obesity alters distribution and excretion
- Dosage based on ideal body weight or total body weight

Treat the Underlying Cause

Objective 4: LME Complications

Patient transfer and handling
American Ambulance Association
Position Statement

• Policy and procedures
  – Lifting strategies
  – Minimum personnel
  – Lifting equipment
• Continuing education
  – Morbidly obese patient care
• Appropriate equipment to minimize injuries

Lifting, Moving and Extrication

• Preplan
  – Mutual aid/lift assist agreements
  – Identify potential morbid obese patients
• Engineering controls
  – Structure modifications
• Transport destination
  – Specialized treatment and equipment

LME Complications

<table>
<thead>
<tr>
<th>Lifting</th>
<th>Moving</th>
<th>Extrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited space</td>
<td>Extremities do not move with body</td>
<td>Need to remove doors or windows</td>
</tr>
<tr>
<td>Positional respiratory distress</td>
<td>Narrow hallways, stairs, and corners</td>
<td>Standard techniques do not work</td>
</tr>
<tr>
<td>Patient unable to assist</td>
<td>Cluttered living space</td>
<td>May attract bystander or media</td>
</tr>
<tr>
<td>Coordinating rescue team</td>
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<td></td>
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</tbody>
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LME Guidelines

- Appoint IC and safety officer early
- Assess the patient
  - Emergent or non-emergent
  - Possible on-scene treatment
- Packaging and removal method

Assess Patient

- Lift Assist
- Non-emergent Transport
- Emergent Transport

- Explain process
- Move in small increments

Safe Lifting Basics

- Maintain good posture
- Lift with legs
- Feet shoulder width apart
- Use a strong grip
- Do not twist or lean
- Do not reach or pull patient up
- Smooth motions
- Arms near body
LME Techniques

- Lateral movement—highest risk
- Patient walk off end of bed
- Roll onto blanket for lifting
- Mechanical lifting aids
- Wheeled device ASAP
- "Scout" the path

Lifting Equipment

- Know equipment capabilities
- Do not exceed capacity ratings
- Backboard—not recommended
- Custom
- Specialized cots

Ambulance

Picture has been removed
Respect and Dignity

Summary

- Obesity is an epidemic
- Be prepared to assess, treat, and transport morbidly obese patients
- Obesity and morbid obesity negatively impact every body system
- Use the patient assessment to identify and treat life threats, injuries, and patient history
- Planning, adequate resources, and specialized equipment decrease the risk of lifting, moving, and extrication to the patient and rescuers

Credits

- Images and Photos
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  - Stryker EMS
  - Stevens Point Fire Department/Portage County Ambulance
  - Emergency Preparedness Systems LLC
  - EMS and Rescue Photography Collection
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Credits

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The presentation was narrated by John A. Chamberlain, Jr. of Milwaukee, Wisconsin.

References


