Weight Gain and HIV Care: Too Much or Just Right?

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Learning Objectives

1. Identify nutrition issues prevalent in overweight/obese patients with HIV infection

2. Learn how to determine whether weight gain, weight loss, or weight maintenance is appropriate for HIV-infected patients

3. Evaluate different weight loss interventions for use in patients with HIV infection

*The presenter has no conflicts of interest to disclose.*
Obesity and HIV

- Old paradigm: More weight = more survival
- New paradigm: More weight = more comorbidities
  - 2/3 of HIV+ patients now overweight or obese
    - Overweight = Body Mass Index 25-29
    - Obese = Body Mass Index ≥ 30

Thompson-Paul et al, CROI 2013 abstract #777
Not everyone stays in the same category...

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Tate & Willig et al, AVT (2012)

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Black = baseline
White = 2 yrs. Follow-up

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The bar graph shows the percentage of participants in normal weight and overweight/obese categories at baseline and after 2 years of follow-up. The data suggests there is a notable increase in the percentage of participants classified as overweight or obese over the follow-up period.
Obesity and HIV – Race/Gender

- Obesity prevalence now similar to HIV-population
- Similar Racial/ethnic and gender risk for obesity
- Should Tx also be similar?

Willig, et al. *under review*
Obesity and HIV - Complications

- Immune recovery – how does obesity impact CD4+?
- Chronic diseases and multimorbidity
- Physical Function/Frailty
- Cognitive Function
Case Study 1

- 39 y/o black female
  - BMI: 37
  - Requests information re: weight loss

- HIV+ for 8 years
- CD4 cell count = 550
- Viral Load = undetectable

- PMH:
  - Depression
  - Type 2 Diabetes (Dx 1 yr ago)
  - HTN
  - Hyperlipidemia
  - Alcohol consumption
  - No Hx tobacco

- Current Medications:
  - Atripla®
  - Metformin
  - Simvastatin
  - Bupropion
  - Prenatal MVI
  - Reports 75% compliance

- Labs:
  - Blood pressure: 150/96 mmHg
  - HgA1c: 7.5%
  - LDL-C: 155
  - HDL-C: 28
  - Trig: 80
Should this patient lose weight?

- Considerations:
  - Desire to lose weight
  - Advantages/Limitations
  - Resources
How to Measure Obesity in HIV?

- **BMI** does not capture fat-to-muscle ratio or lipodystrophy/atrophy, but is easier to measure

- **Bioelectrical Impedance Analysis (BIA)** only accurate under strict conditions (phase angle very accurate)

- **Waist circumference** better, but limited guidelines for HIV+
  - Men: < 40 inches; Women: < 35 inches

- Waist/hip ratio
  - Men: < 0.95; Women: < 0.80

- Waist/height ratio
  - Waist no more than half the length of your height
  - Under age 40: < 0.50; over age 40: > 0.60

DeSocio et al, HIV Med (2011)
Edmonton Obesity Staging System (EOSS)

Sharma AM & Kushner RF, *Int J Obes* 2009
EOSS – our patient

- Medical: has 5 diagnosed comorbidities (Stage 2)

- Mental: has Hx of depression w/ treatment (Stage 3)

- Functional: patient reports moderate functional limitations due to size (Stage 2)

- Overall EOSS: Stage 2
Proposed Edmonton Obesity Staging System (EOSS)

**Stage**

**Stage 0:** Patient has no apparent obesity-related risk factors (e.g., blood pressure, serum lipids, fasting glucose, etc., within normal range), no physical symptoms, no psycho-pathology, no functional limitations and/or impairment of well being

**Management**

Identification of factors contributing to increased body weight. Counseling to prevent further weight gain through lifestyle measures including healthy eating and increased physical activity.

**Stage 1:** Patient has obesity-related subclinical risk factors (e.g., borderline hypertension, impaired fasting glucose, elevated liver enzymes, etc.), mild physical symptoms (e.g., dyspnea on moderate exertion, occasional aches and pains, fatigue, etc.), mild psychopathology, mild functional limitations and/or mild impairment of well being

**Management**

Investigation for other (non-weight related) contributors to risk factors. More intense lifestyle interventions, including diet and exercise to prevent further weight gain. Monitoring of risk factors and health status.

**Stage 2:** Patient has established obesity-related chronic disease (e.g., hypertension, type 2 diabetes, sleep apnea, osteoarthritis, reflux disease, polycystic ovary syndrome, anxiety disorder, etc.), moderate limitations in activities of daily living and/or well being

**Management**

Initiation of obesity treatments including considerations of all behavioral, pharmacological and surgical treatment options. Close monitoring and management of comorbidities as indicated.

**Stage 3:** Patient has established end-organ damage such as myocardial infarction, heart failure, diabetic complications, incapacitating osteoarthritis, significant psychopathology, significant functional limitations and/or impairment of well being

**Management**

More intensive obesity treatment including consideration of all behavioral, pharmacological and surgical treatment options. Aggressive management of comorbidities as indicated.

**Stage 4:** Patient has severe (potentially end-stage) disabilities from obesity-related chronic diseases, severe disabling psychopathology, severe functional limitations and/or severe impairment of well being

**Management**

Aggressive obesity management as deemed feasible. Palliative measures including pain management, occupational therapy and psychosocial support.

* The stages are complementary to BMI classifications of obesity

adapted from Sharma AM & Kushner RF, *Int J Obes* 2009
Case Study 1

- EOSS: Stage 2

- Desire to lose weight: yes

- Advantages/Limitations:
  - Advantages: Metformin; Bupropion; non-PI regimen
  - Limitations: Simvastatin

- Resources: Is a dietitian available?
  - Our patient: internet access/smart phone
  - Limited income (uses SNAP card)
  - Limited literacy level
Nutrition options

- Special Considerations:
  - Metabolism 10% higher than expected when HIV+ and on ART
  - Need protein
    - Goal: 100-150 grams a day for HIV+ men
    - 80-100 g/d for HIV+ women
    - Kidney disease: limit total calories to less than 20% from protein
Nutrition Options

- Portion Control – What does that mean?
  - **Portion**: amount of food you choose to eat
    - Can be large or small; your choice

- **Serving**: measured amount of food or drink
  - 1 slice bread; 8 oz. soda

- The ‘catch’: We think in portions; food manufacturers think in servings

- Start with portion control no matter what nutrition lifestyle your patient has
MyPlate – how to adapt for HIV+?

- [www.choosemyplate.gov](http://www.choosemyplate.gov)
Is there a “special diet” for weight loss?

<table>
<thead>
<tr>
<th>Diet composition</th>
<th>Percent calories from fat</th>
<th>Percent calories from protein</th>
<th>Percent calories from carbohydrate</th>
<th>Weight loss at 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low fat, average protein</td>
<td>20</td>
<td>15</td>
<td>65</td>
<td>6.6 pounds</td>
</tr>
<tr>
<td>Low fat, high protein</td>
<td>20</td>
<td>25</td>
<td>55</td>
<td>8.8 pounds</td>
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Sacks et al. NEJM (2009)
What do successful eating patterns have in common?

- Not too many calories ("hara hachi bu" = 80%)
- Limited distractions
- Canola oil (olive oil for taste)
- Vegetables
- Nuts/nut butters
- Less “white stuff”
- Some type of fish (tuna, trout cheaper)
- Prebiotics/probiotics

A patient can often work on any diet to get more of the above – even a fast food diet
What do successful eating patterns have in common?

- Meal frequency: 3 large versus 6 small meals?

- Meal timing: Is it better to eat/not eat at certain times?
  - Should patient eat carbs/fat/protein at certain time of day?
HIV and Exercise

- For patients without frailty/muscle damage:
  - High Intensity Interval Training

- For all patients:
  - Walking (how does it compare to running?)
  - What to do when homebound?
  - Calisthenics/Resistance Training

- Can your patient pass the Flight of Stairs test?
Weight loss and HIV - limitations

- Food insecurity
- Health literacy
- Exercise with statins or HIV-related muscle damage
Medications

- Produce ≈ 5-10% weight loss when combined with diet/exercise

- Common side effects: ↑ blood pressure, ↑ heart rate, nausea, constipation

- New on the market:
  - Lorcaserin – serotonin appetite suppressant
  - Phentermine/topiramate - appetite suppressant

- Tesamorelin – approved to treat HIV-lipodystrophy abdominal fat
  - Once daily pill over 52 weeks reduced visceral body fat, improved trig

Makimura et al., JCEM 2012
<table>
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<tr>
<th>Drug</th>
<th>Mechanism of action</th>
<th>Possible side effects</th>
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<tr>
<td>Benzphetamine (Didrex®)</td>
<td>Decreases appetite, increases feeling of fullness</td>
<td>Increased blood pressure and heart rate, nervousness, insomnia, dry mouth, constipation</td>
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<tr>
<td>Diethylpropion (Tenuate®)</td>
<td>Decreases appetite, increases feeling of fullness</td>
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<tr>
<td>Lorcaserin (Belviq®)</td>
<td>Decreases appetite, increases feeling of fullness</td>
<td>Increased heart rate, headache, dizziness, nausea</td>
</tr>
<tr>
<td>Phendimetrazine (Bontril®)</td>
<td>Decreases appetite, increases feeling of fullness</td>
<td>Increased blood pressure and heart rate, nervousness, insomnia, dry mouth, constipation</td>
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<td>Phentermine (Adipex®,</td>
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<td>Suprenza®)</td>
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<tr>
<td>Orlistat (Xenical®)</td>
<td>Blocks absorption of fat</td>
<td>Intestinal cramps, gas, diarrhea, oily spotting</td>
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<td>Phentermine and extended-release topiramate (Qsymia®)</td>
<td>Decreases appetite, increases feeling of fullness</td>
<td>Increased heart rate, birth defects, tingling of hands and feet, dry mouth, constipation, anxiety</td>
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Bariatric Surgery

- No well-controlled safety/efficacy studies for HIV+ patients

- Case study of 7 patients:
  - 5 remained virally suppressed post-op
  - CD4 cell count variable
  - 3 experienced surgical complications
  - 1 efavirenz discontinuation
  - 3 experienced vitamin deficiency (Vit B12, Vit D)
  - Improved lipids, glucose, blood pressure

- Potential option for patients with BMI > 40 or > 35 with comorbidities
  - Requires high degree of monitoring post-op

Selke et al, AIDS Pt. Care & STDs (2010)
Case Study 2

- 47 y/o white male
  - BMI: 27
  - c/o diarrhea, lack of appetite
  - Asks about weight loss
  - No limited mobility

- HIV+ for 2 years
- CD4 cell count = 329 (decreased)
- Viral Load = undetectable

- PMH:
  - Hepatitis C
  - CABG x 2
  - Hyperlipidemia
  - Hx tobacco use; no smoking for 2 years
  - Alcohol consumption

- Current Medications:
  - Atripla®
  - Rosuvastatin
  - Reports 90% compliance

- Considering telaprevir

- Labs:
  - ALT/AST normal
  - LDL-C: 132
  - HDL-C: 42
  - Trig: 96
Our patient: Stage ?
### Proposed Edmonton Obesity Staging System (EOSS)

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HIV / Hep C Nutrition

- Patient technically benefits from weight loss, but dealing with additional complications

- Weight Maintenance benefits?

- Diarrhea:
  - Limit milk, caffeinated beverages
  - Limit greasy foods
  - Smaller meals, eaten slowly
HIV / Hep C Nutrition

- Liver friendly foods:
  - Oatmeal
  - Nuts (almonds, peanuts, walnuts)
  - Beans
  - Tuna, Salmon
  - Avocado
  - Onions
  - Garlic
  - Lemon
  - Tomatoes
  - Flaxseed
Thank you

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