Bariatric Surgery in Persons with HIV

Jason M Samuels M.D.
Assistant Professor of Surgery
Vanderbilt University Medical Center
&
Joseph R Broucek M.D.
Assistant Professor of Surgery
Director – General Surgery Service & Clinics
Program Director - Minimally Invasive Surgery Fellowship
Vanderbilt University Medical Center

Disclosures

- None relevant to this talk

Learning Objectives

- Develop an understanding of the implications and pathophysiology of HIV-related obesity and metabolic syndrome.
- Gain knowledge in the medical and surgical options for obesity in patients with HIV.
- Learn about the benefit and risk balance of surgical weight loss in PWH.

Background

- PWH with obesity increasing globally: > 14,000 in U.S. and Canada.
- Prevalence doubled from 1998 - 2010.
- Disproportionate impact on women, minorities, lower socioeconomics.
- Multifactorial problem.
  - Genetics
  - Environment
  - HIV metabolic consequences
  - HIV therapies

Case Presentation

- 34 year old man with BMI 48 and history of HIV (diagnosed 8 years prior).
- Undetectable viral load on current regimen.
- Has Type 2 diabetes on metformin (last A1c 6.9).
- Has tried several diets with some inconsistent, non-sustained weight loss.
- Did not tolerate semaglutide due to severe nausea.
- Options?

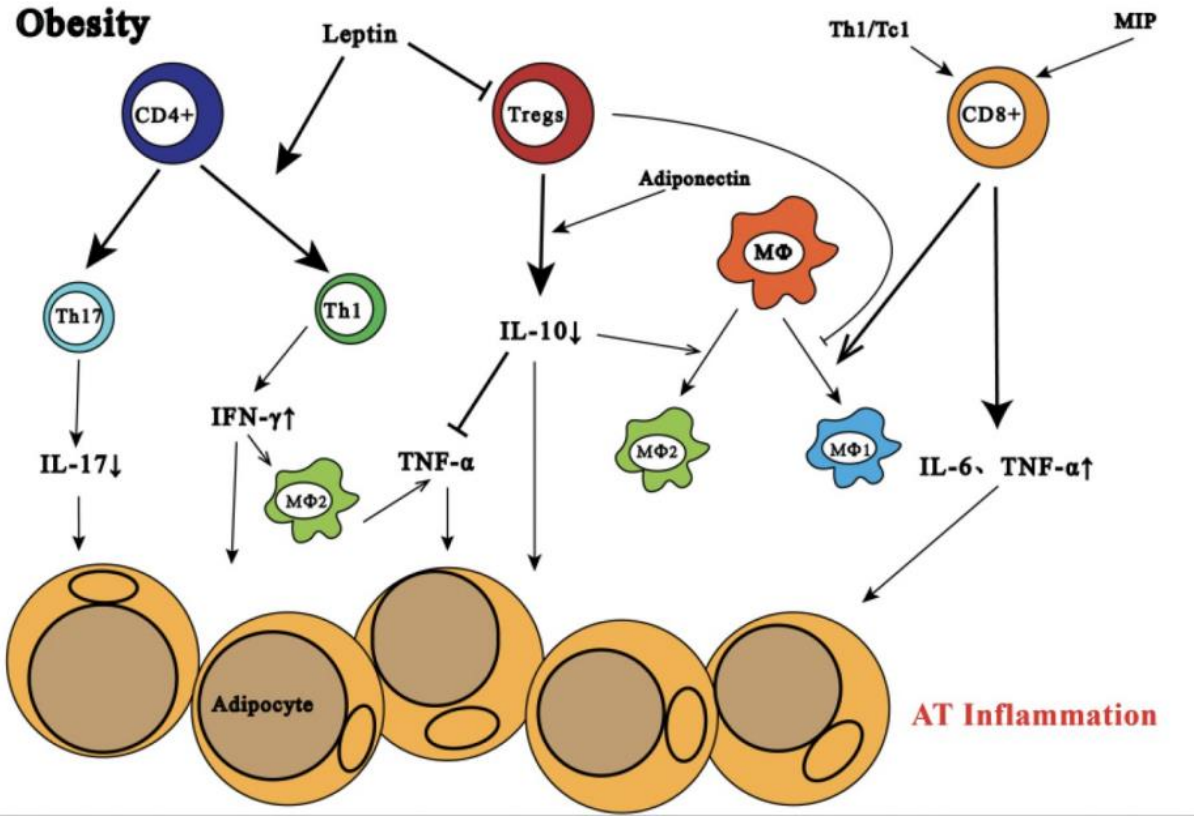
HIV and metabolic syndrome

- Risk of diabetes in PWH who experience weight gain greater than patients without HIV.
- Risk of diabetes directly proportional to degree of weight gain in PWH
- PWH have increased risk of CVD (MI, stroke, CHF).
- PWH have greater risk of NAFLD compared to general population (35 vs 25%).
  - Leading cause of non-AIDS related mortality in PWH.

Bailin SS, Gabriel CL, Wanjalla CN, Koethe JR. Obesity and Weight Gain in Persons with HIV. Curr HIV/AIDS Rep. 2020 Apr;17(2):138-150. doi: 10.1007/s11904-020-00483-5. PMID: 32072466;

HIV infection impact on adipose tissue

- HIV establishes presence in adipose tissue.
- Contributes to pro-inflammatory state of obesity.
- Likely driver in metabolic syndrome associated with HIV



Wang Q, Wang Y, Xu D. The roles of T cells in obese adipose tissue inflammation. Adipocyte. 2021

Medical Therapies for Weight loss

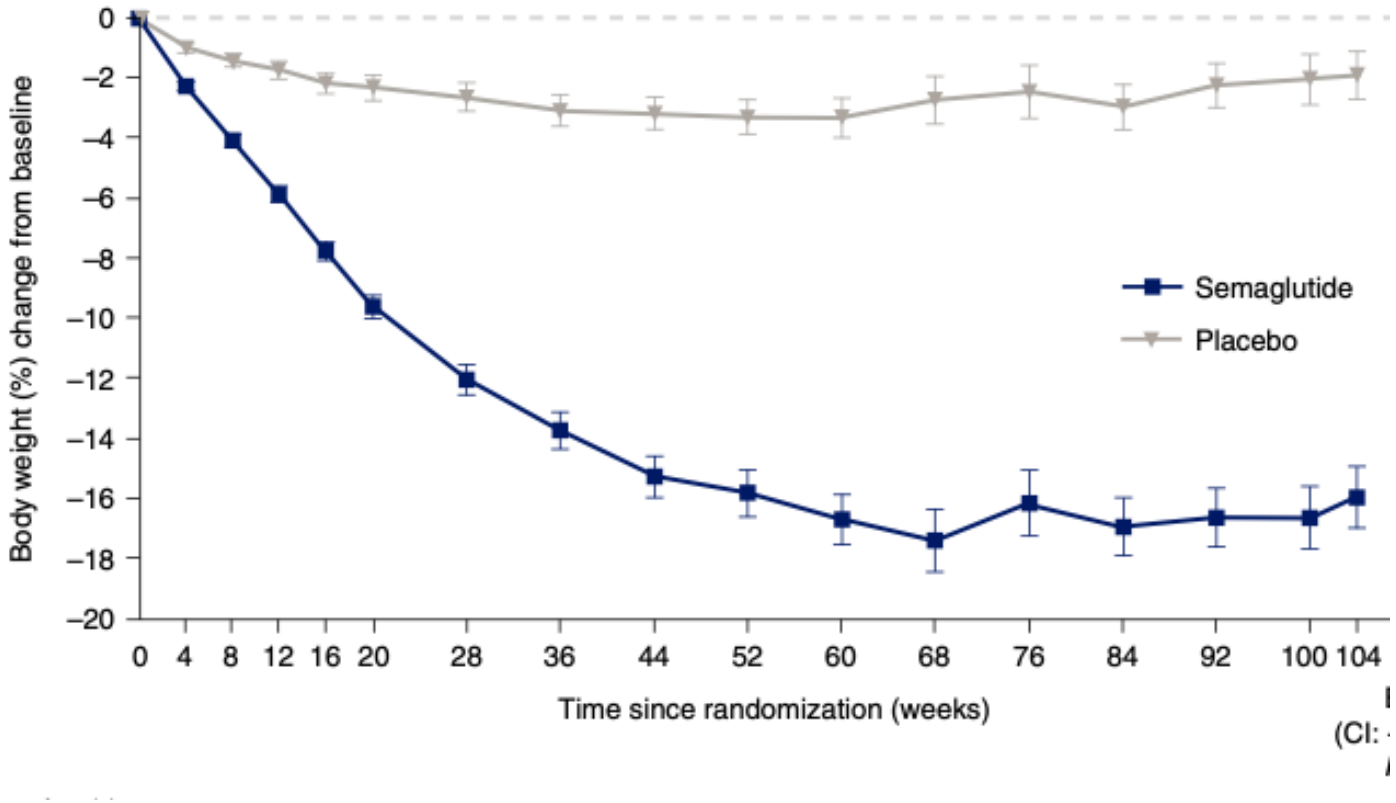
- Older generation: Orlistat, Phentermine, Topiramate, Buproprion/naltrexone.
- Newer generation:
  - SLGT-2 inhibitors: Empagliflozin (Jardiance), others.
  - GLP1-RA: Liraglutide, Semaglutide (Ozempic/ Wegovy),
- Third generation: Di- and Tri-agonists: Tirzepatide (Mounjaro), retatrutide, others.

Outcomes with Older generation Medical Therapies

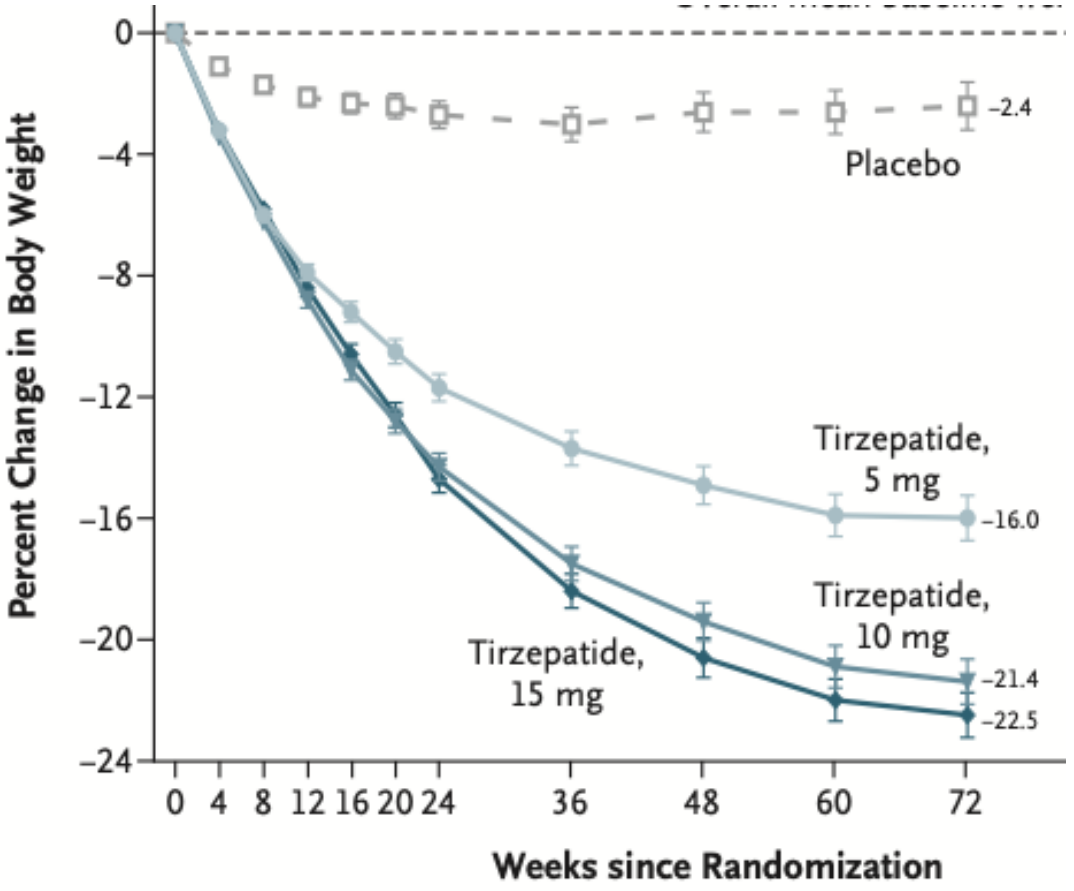
- Phentermine – 3 kg.
- Orlistat – 3 kg.
- Phentermine / Topiramate – 6-12 kg.
- Buproprion/naltrexone – 6 kg.

Outcomes with Newer Generation Therapies

Semaglutide

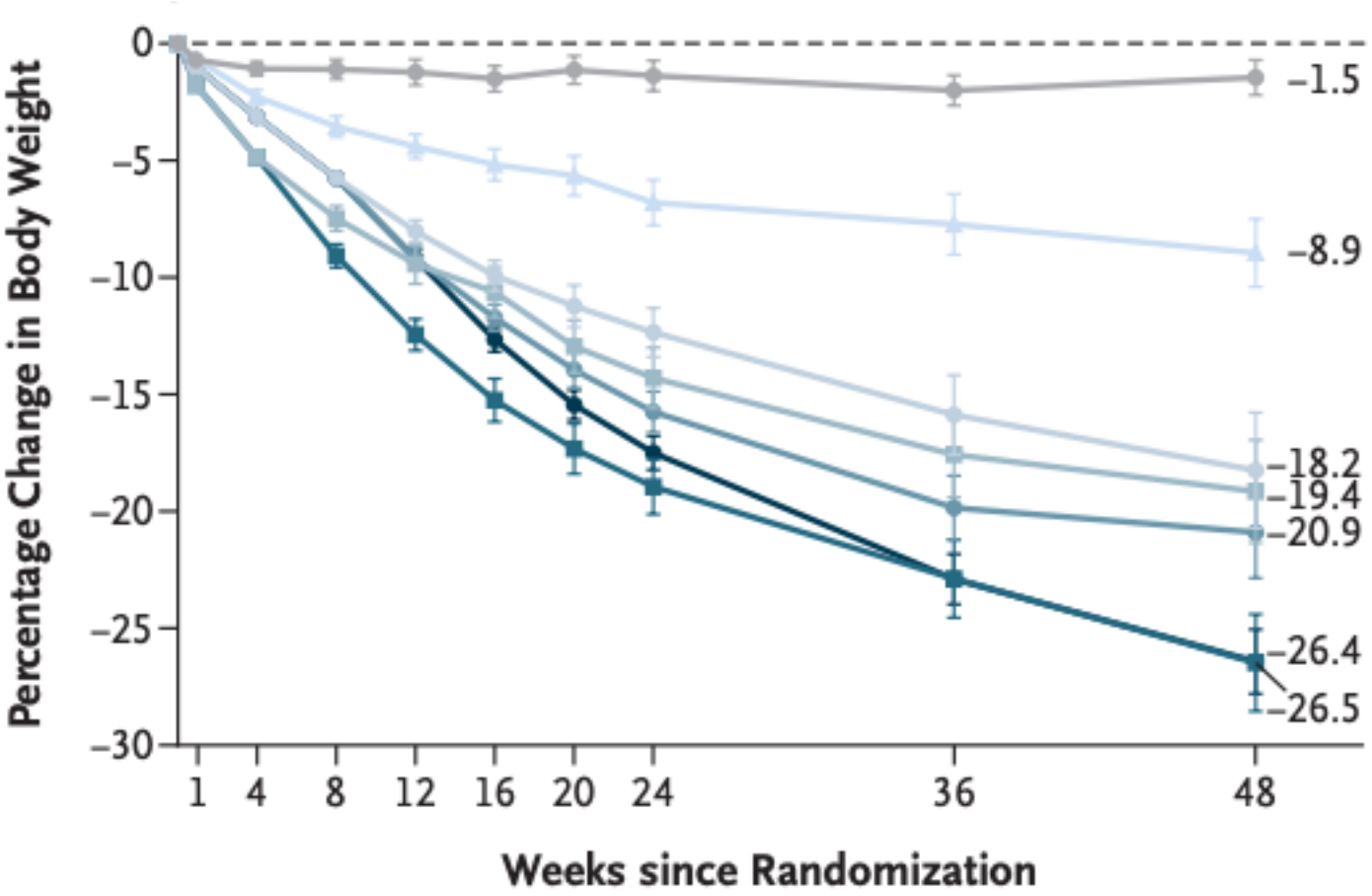


Tirzepatide



Outcomes with Newer Generation Therapies

Retatrutide



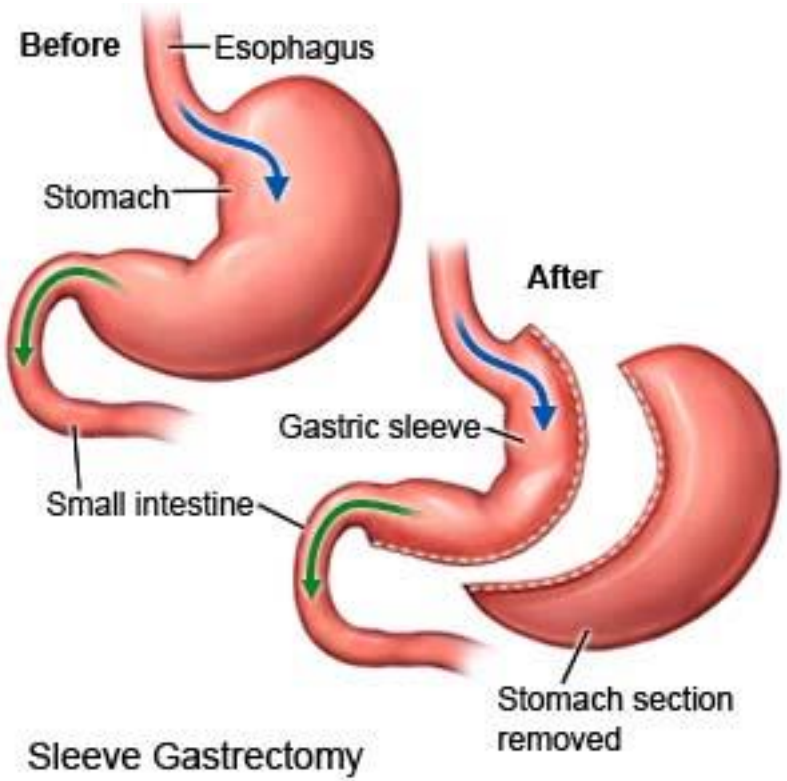
Side effects / Challenges

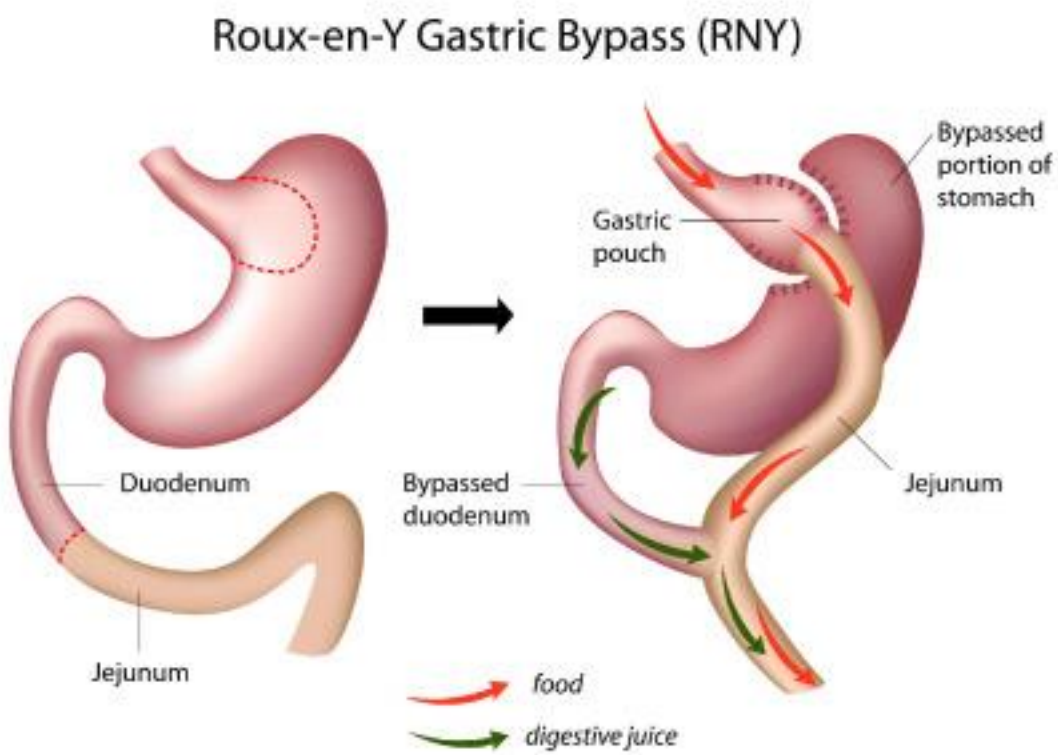
- ~1/3 patients experience moderate side effects with GLP-1 Receptor agonists.
  - Nausea, vomiting, abdominal pain.
- Significant proportion of patients in non-trial setting fail to achieve maximal dose necessary for greatest weight loss benefit.
- Long term weight loss/ weight gain unknown.
- Can cost ~$1000/month depending on coverage.
- Weight regain occurs immediately with drug cessation.

Bariatric surgery in obesity

- Latest recommendations for patients with BMI ≥ 35 or in patients with BMI ≥ 30 with comorbidities (T2DM, HTN, OSA, etc.)
- Most common bariatric surgeries
  - Sleeve Gastrectomy (SG)
  - Roux-en-Y Gastric Bypass (RNYGB)
  - Duodenal Switch (DS)
  - Single Anastomosis Duodenoileal Anastomosis (SADI)
  - Others (endoscopic, bipartition, balloons…)
- No specific guidelines recommending particular surgery

SG and RNYGB anatomy





Sleeve Gastrectomy

Roux-en-y Gastric Bypass

Surgery Selection Considerations in PWH

- Degree of obesity severity.
- Medication adherence and difficulty with viral load management.
- Presence and severity of comorbidities.
  - Type 2 Diabetes
  - Hyperlipidemia
  - Hypertension
  - Sleep Apnea.
- Presence of gastric reflux.

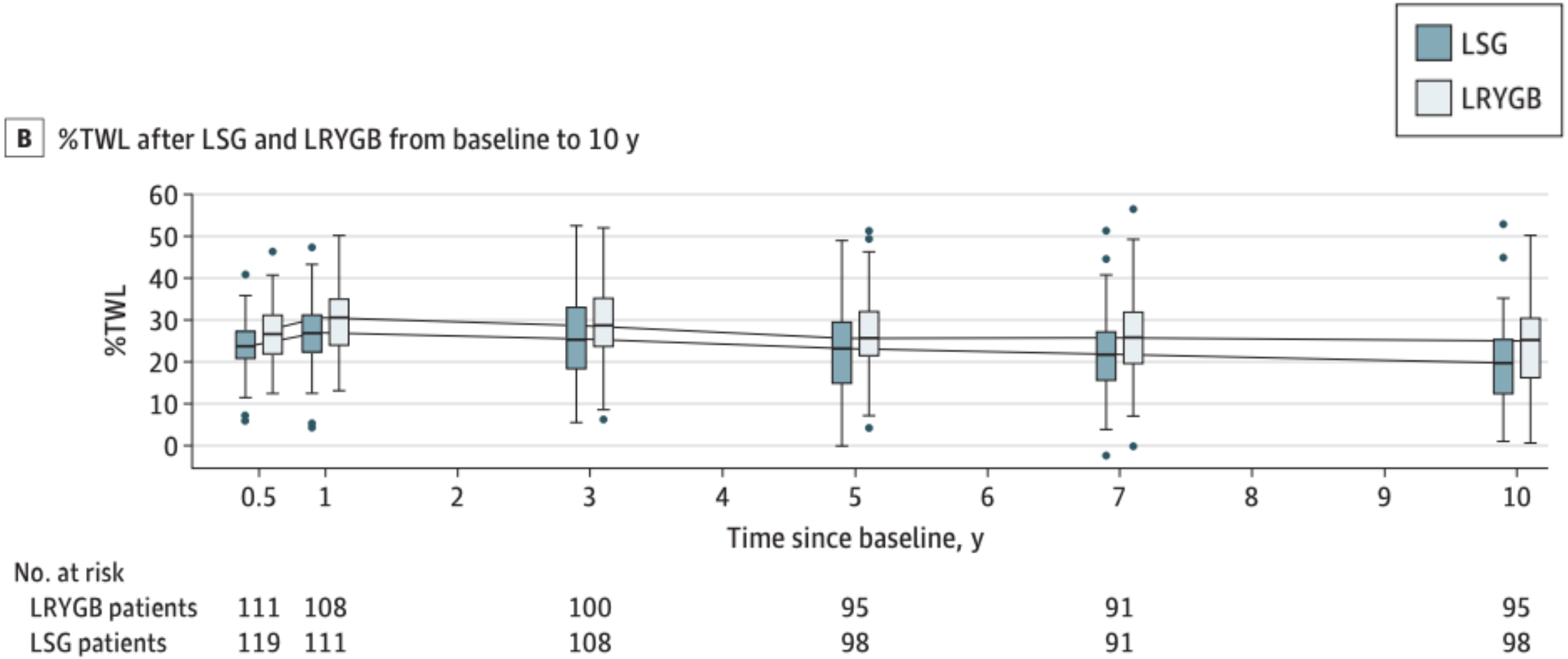
Patient- Related Factors

- Preference in surgery common in patients seeking weight loss surgery.
  - Perceptions:
    - Sleeve less “invasive” and less life altering.
    - “Friend/ Family member had great success” with one of the surgeries.
    - “Friend/Family had complications” with one of the surgeries.
    - “Whatever you recommend doc”.

Our practice in surgery selection

- Patient-specific:
  - Personal preference
  - Medication considerations
  - Gastric reflux symptoms
  - Obesity severity
  - Comorbidity presence and severity
  - Anatomic factors
    - Prior surgeries
    - Body composition

Bariatric Surgery Outcome Expectations



Adverse events with Bariatric Surgery

- Require life-long vitamin and protein supplementation (~$40/month).
- Require dietary alterations and maintenance.
- Lead significant fat free mass loss initially.
- Serious adverse events rare:
  - Bleeding (< 1%) and leaks (~0.1%) very rare.
  - Internal hernias - 3-5%.
  - Reflux with sleeve occurs ~20%.
  - ~8-10% patients require surgical revision.

Clinical Infectious Diseases

MAJOR ARTICLE

Outcomes of Bariatric Surgery in People With Human Immunodeficiency Virus: A Retrospective Analysis From the ATHENA Cohort

- Primary outcomes: “Virologic failure”, and >20% weight loss.
- 51 patients enrolled.
- 76% underwent gastric bypass, 24% sleeve.
- Median 11 years since HIV diagnosis.
- Avg BMI 40 at time of surgery.
- 84% with undetectable viral load at time of surgery.
  - 50% of patients with detectable loand became fully suppressed 18 months post-op.
- **One case virologic failure**
- **85% achieved >20% total body weight loss 18 months post-op.**

OBES SURG (2018) 28:1070–1079
https://doi.org/10.1007/s11695-017-2996-8

ORIGINAL CONTRIBUTIONS

Comparative Outcomes of Bariatric Surgery in Patients With and Without Human Immunodeficiency Virus

- Retrospective matched analysis.
- 11 PWH matched 1:5 to patients without HIV.
- 36% male, median age 42, baseline BMI 46.
- 73% underwent RNYGB, remainder sleeve.
- No difference in complications, zero 30 day mortality.
- Equivalent %EWL – 56% vs 60% PWH and without, respectively.

Remaining questions

- John Koethe MD & Sam Bailin MD
  - Underlying pathophysiology causing metabolic risk in PWH.
  - Lipid-associated T cell role in metabolic syndrome.
- Prospective trial development
  - Impact of weight loss on HIV management and metabolic syndrome resolution.
  - Balance of weight loss with bypass with theoretical absorption issues.

Objectives recap

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Thank you!

- Questions?
- Jason.m.samuels@vumc.org
- Joseph.r.Broucek@vumc.org