Bariatric Behavioral Health: Post-Operative Considerations

December 4, 2020
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Overview

- Most patients report psychological improvements
- Post-operative areas of higher risk
  - Psychiatric Co-morbidity (Depression)
  - Suicide
  - Alcohol
  - Opioids

Psychiatric Co-morbidity: Depression

Psychiatrically Vulnerable

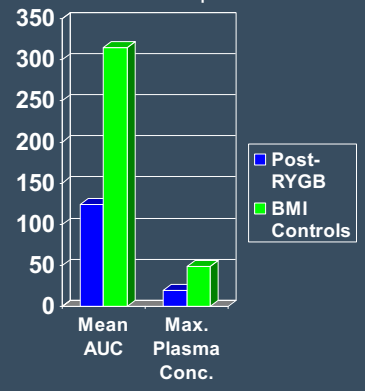
- Higher base-rate of psychopathology[1]
- 25-30% of surgical candidates report depression at time of evaluation[2,3]
  - 9% with current suicidal ideation[4]
  - 50% report lifetime prevalence of mood disorder or an anxiety disorder[2,3]
- 72.5% report a lifetime history of psychotropic medication use[5]
  - 47.7% rate of current use

1. Mitchell et al., 2012
2. Kalarchian et al., 2007
3. Mühlhans et al., 2009
4. Dawes et al., 2016
5. Pawlow et al., 2005

Medication Concerns

- Pharmacokinetics of psychotropic medication after surgery are not well understood[1]
  - Modeled dissolution rates of anti-depressants are highly divergent (increased, decreased, unchanged)
- Close monitoring of patients is necessary

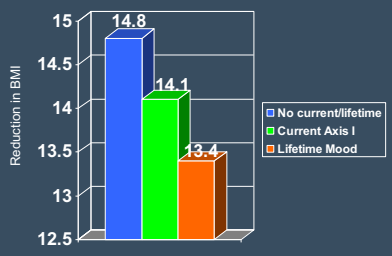
Sertraline 10.5 hour plasma levels[2]



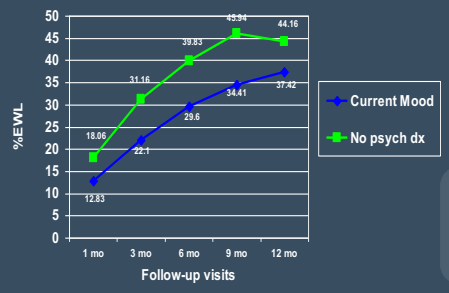
1. Love et al., 2008
2. Roerig et al., 2012

Depression and Weight Loss Outcomes

- Most studies suggest that depression is associated with less positive outcomes although weight loss remains highly significant



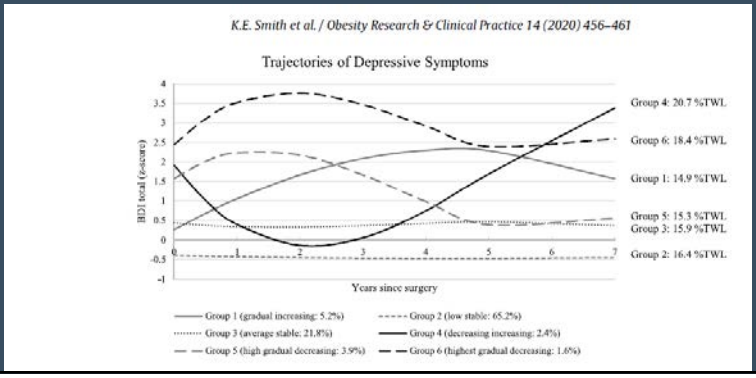
Relationship of depression to 6 month RYGB outcomes (Kalarchian et al., 2008)



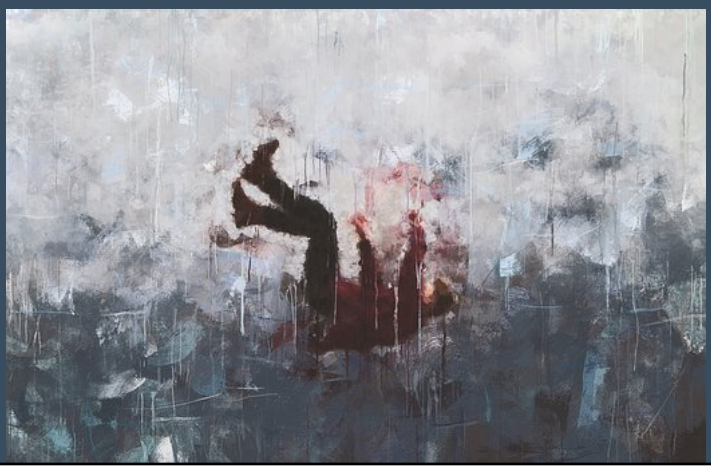
Mood Disorders and Weight Loss in LSG (Semanscin-Doerr, Windover, Ashton & Heinberg, 2010)

Weight Loss and Depression Outcomes

- Clear positive benefit on depression due to weight loss surgery for many but some get worse
  - Early benefit may not be lasting



Suicide and Suicidal Behavior



Suicide

- Suicide rates have increased by 60% worldwide in the last 45 years[1]
  - 1.5 completed suicides per 10,000
  - For every mortality there an estimated 11-400 attempts[2]
- Risk factors[3-4]
  - Psychopathology
    - Depression
    - Anxiety
    - Personality disorders
    - Eating Disorders
  - Alcohol and substance abuse
  - Chronic medical illness[5]
    - Risk of suicidal behavior between 2-11x greater than healthy adults

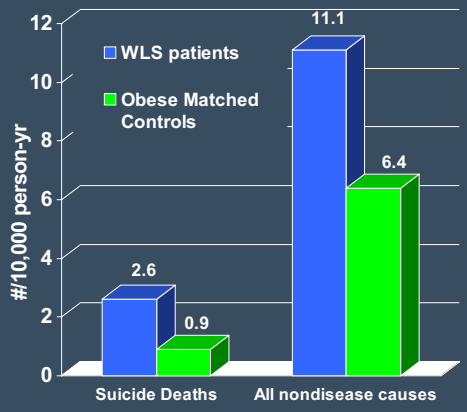
1. CDC, 2011
2. MMWR, 2004
3. Petry et al., 2008
4. Wilson, 2010
5. Juurlink et al., 2004

Obesity and Suicide

- Positive association between obesity and suicide[1]
- Greater prevalence of suicide history among bariatric patients
  - 73x greater prevalence of past attempts[2]
  - Past suicide attempts are strongest risk factor for future suicide deaths[3]

1. Heneghan, Heinberg, Elder, Windover & Schauer, 2012
2. Windover, Ashton & Heinberg, 2010
3. Gibb et al., 2005

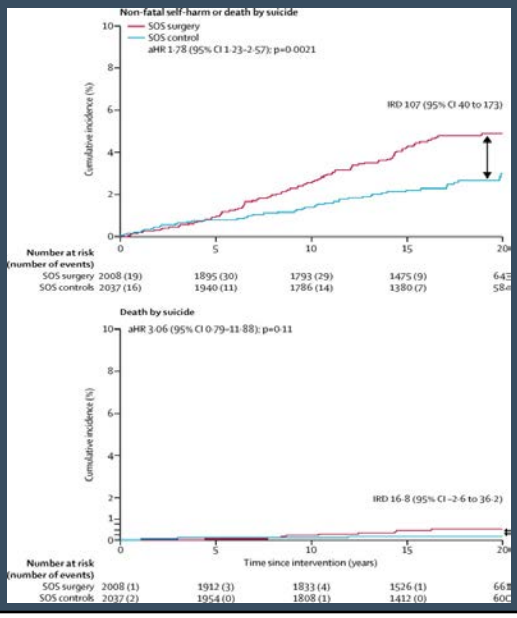
Excess deaths by traumatic causes following weight loss surgery



- Matched using UT drivers' licenses
  - Sex, BMI, age and year
- Non-disease related deaths increased by a factor of 1.58 (*p*=.04)
- Differences in suicides, however, were not significant

Adams et al., 2007

Risk of suicide and non-fatal self-harm



- SOS Study of 20,262 subjects followed for 20 years
  - Matched surgery patients to those with lifestyle intervention
- "Bariatric surgery was associated with suicide and non-fatal self-harm. However, the absolute risks were low and do not justify a general discouragement of bariatric surgery. The findings indicate a need for thorough preoperative psychiatric history assessment along with provision of information about increased risk of self-harm following surgery. Moreover, the findings call for postoperative surveillance with particular attention to mental health."

Neovius et al., 2018

Meta-analyses

- Out of 28 studies examining suicide, a suicide rate of 4.1/10,000 (95% confidence interval [3.2, 5.1]/10,000)[1]
  - Population base rate is 1.5/10,000
- Out of 58 studies examining mortality, all cause mortality is 1.8% and suicide mortality is 0.3%[2]

1. Peterhänsel et al., 2013
2. Lim et al., 2018

2019 Meta-Analysis

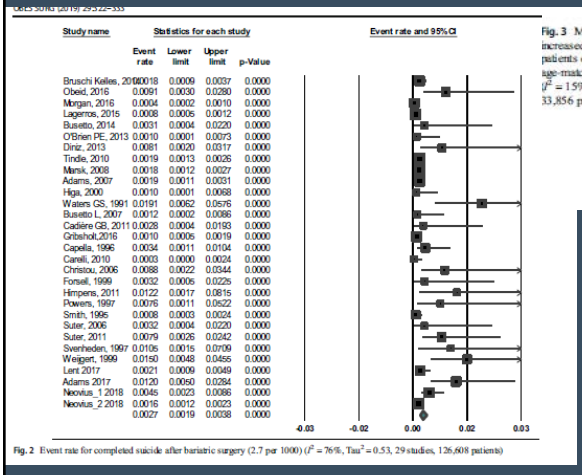
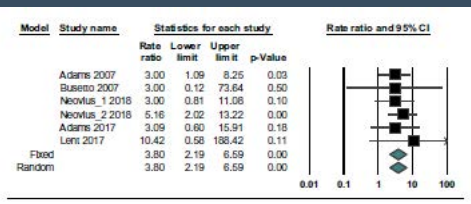


Fig. 2 Event rate for completed suicide after bariatric surgery (2.7 per 1000) (I^2 = 76%, Tau^2 = 0.53, 29 studies, 126,608 patients)

Fig. 3 Mortality from suicide is increased in bariatric surgery patients compared to BMI- and age-matched controls, OR 3.8 (I^2 = 15%, Tau^2 = 0.02, 5 studies, 33,856 patients)



- 24x rate of suicide deaths compared to general population
- Suicide rate was 27/10,000 patients
- Suicide/self-harm rate was 170/10,000 patients

Castaneda et al., 2019

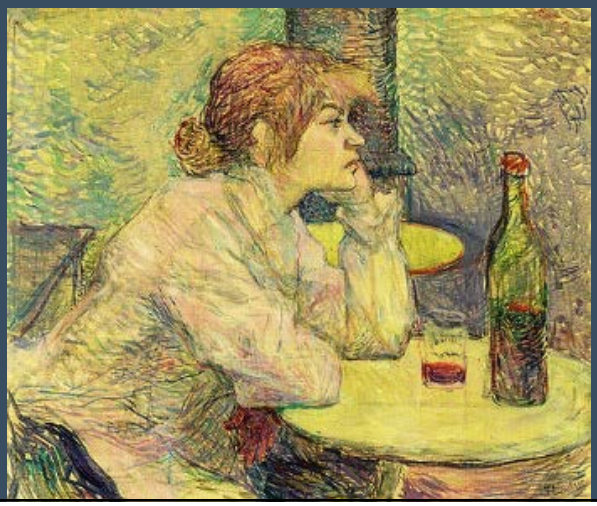
What's going on?

- Baseline > risk
- > distress if disappointed in outcomes/regain
- > body image distress, social problems
- Alternations in mediating peptides/hormones
- Altered kinetics of alcohol
- Altered kinetics of psychopharmaceuticals

What to do

- Imperative that clinicians involved in management of obesity appreciate that depression and suicide are threats
  - Even after improvement or resolution of the obesity, the underlying psychopathology related to suicide likely remains
- Additional monitoring and more aggressive treatment of at-risk patients would help prevent suicides in our vulnerable population

Alcohol



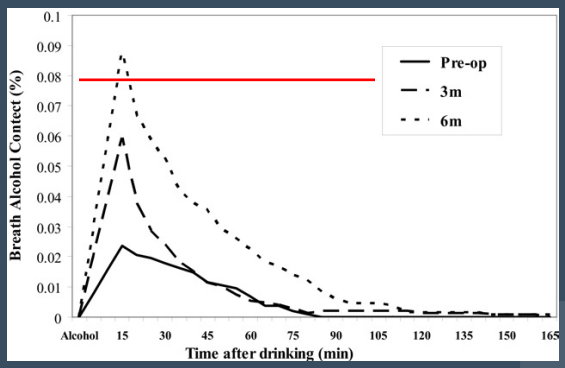
Susceptibility to Alcohol

- Increased sensitivity and reduced tolerance
- Comparisons of post-RYGB patients with BMI-matched controls
  - More rapid ethanol absorption[1]
  - Greater peak alcohol levels[1-2]
  - Longer time period after consumption to return to baseline (108 vs 72 minutes)[2]

1. Klockoff et al., 2002
2. Hagedorn et al., 2007

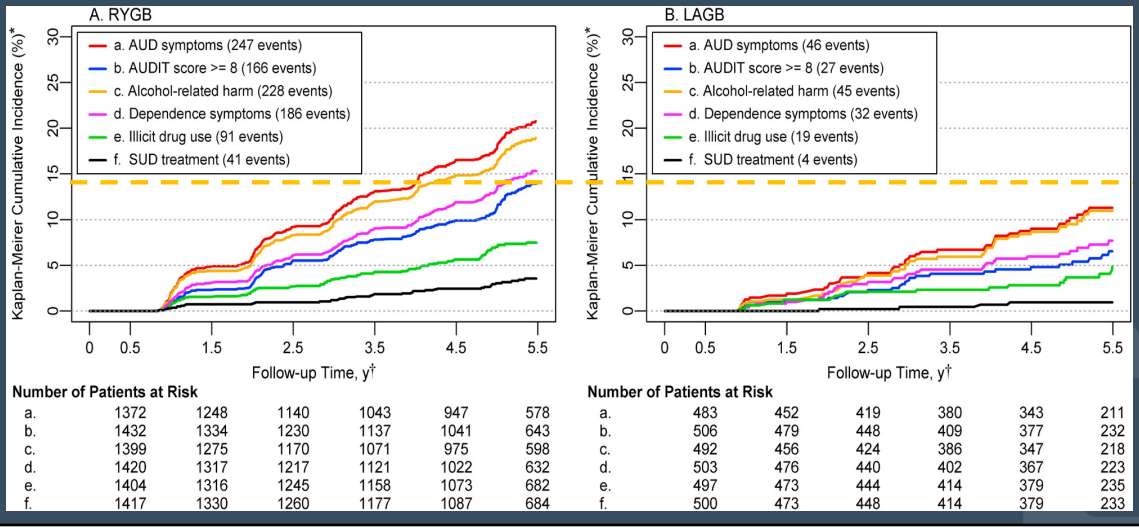
Susceptibility to Alcohol

- Case-crossover trial
  - Laboratory testing of RYGB patients pre-op, 3 and 6 months post-op
  - Effect 3.5x greater



Woodard et al., 2011

Alcohol and other substance use after bariatric surgery: prospective evidence from a U.S. multicenter cohort study (King et al., 2017)



What's going on?

- Addiction Transfer?
- New onset may not be so new
- Altered pharmacokinetics of alcohol
- Shared vulnerability of obesity and compulsive behaviors

What to do

- Vulnerable population given past history and may be physiologically at risk
- Patients who've successfully achieved sobriety may have better weight loss outcomes[1]
- What to do?
  - Psychoeducational groups
  - Informed consents
  - Behavioral contracts

1. Heinberg & Ashton, 2010

Opioids

New Concern: Opioids

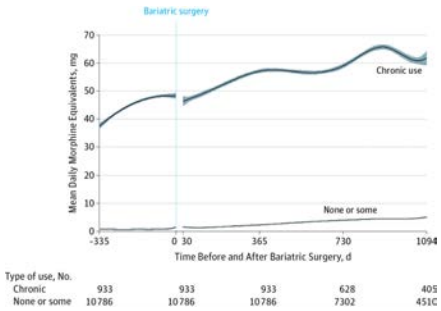
- Linear relationship between BMI and chronic pain[1]
  - Class III obesity reported 254% greater rates of chronic pain
- 5 studies have examined opioid use following surgery[2]
  - All demonstrating increased use when one would hypothesize decreased pain with weight loss

1. Stone & Broderick, 2012
2. Heinberg et al., 2019

JAMA Network™

From: **Chronic Use of Opioid Medications Before and After Bariatric Surgery**

JAMA. 2013;310(13):1369-1376. doi:10.1001/jama.2013.278344



77% of patients who were chronic opioid users before surgery continued chronic opioid use in the year following surgery, and the amount of chronic opioid use was greater postoperatively than preoperatively.

Figure Legend:

Smoothed Average Daily Morphine Equivalents Used Before and After Bariatric Surgery for Groups With Chronic, Some, or No Opioid Use Before Surgery. Longitudinal trends were examined using fitted penalized b-spline curves of daily morphine equivalents used by each group before and after surgery. The tinted bands show 95% CIs for the fitted daily mean morphine equivalent estimates.

Raebel et al., 2013

Chronic Opioid Use after Surgery

- Retrospective cohort study (9 health systems; N= 10,643 bariatric patients who were not chronic opioid users pre-surgery.
- Overall, 4.0% (*n* = 421) of patients became chronic opioid users the first post-surgery year.

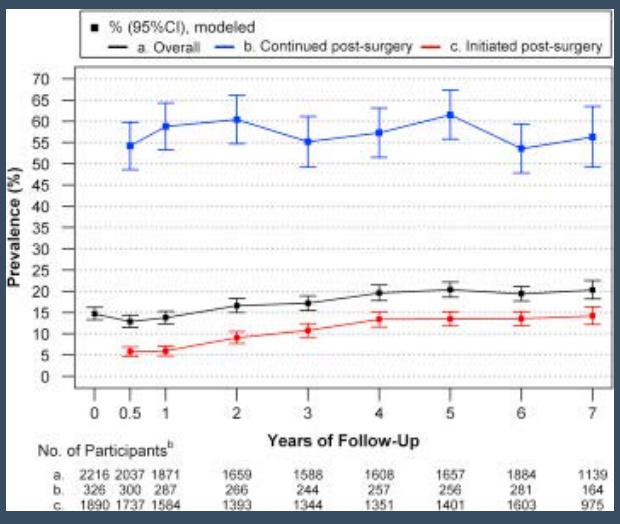
Raebel et al., 2014

Chronic Opioid Use after Surgery

- Factors associated with increased likelihood of post-surgery chronic use included:
  - Use of non-narcotic analgesics (OR, 2.22)
  - Use of antianxiety agents (OR, 1.67)
  - Use of tobacco (OR, 1.44)
- Factors associated with decreased likelihood:
  - Older age (OR, 0.84 for each decade)
  - LAGB versus RYGB (OR, 0.42)

Raebel et al., 2014

Use of prescribed opioids before and after bariatric surgery: LABS



- Pre-op 14.7% of patients regularly used opioid medication
  - Dropped to 12.9% at 6 months post-op
- 7 years post-op 20.3% of patient regularly used opioid medication

King et al., 2017

What's going on?

- Addictive quality of opioids/tolerance development
- Altered absorption
  - Pharmacokinetics of morphine oral solution before and up to 6 months after RYGB showed approximately a pre-to-post-surgery three-fold increase in maximum concentration and a reduction in the time to reach maximum concentration from 53 to 7 minutes[1]
- Changes to the opioid receptor system
  - PET data suggest that mu opioid receptor availability is lower in bariatric surgery candidates relative to lean controls, and that weight loss following bariatric surgery appears to result in higher mu opioid receptor availability compared to preoperative PET scans[2]

1. Lloret-Linares et al., 2014
2. Karlsson et al., 2016

What to do

- Assess for problematic use pre-op
- Get collateral information (e.g., state databases, urine screens)
- Pre-operative education
- Limit prescribed opioids to the lowest effective dose for the shortest duration
- Consents, contracts, treatment agreements
- Monitor at each post-op visit

Conclusions

- Bariatric surgery is the most effective and durable treatment for severe obesity
  - Beyond weight loss and medical co-morbidities, many psychosocial issues are much improved
- Sub-set of patients struggle with ongoing issues
- Much of bariatric behavioral health focuses on pre-op evaluation
  - Interventions needed for post-operative issues

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Every life deserves world class care.