IN THE SUPER-OBESE, BILIOPANCREATIC DIVERSION/DUODENAL SWITCH ELIMINATES VARIATION BY SEX OF CO-MORBIDITY RESOLUTION BUT NOT WEIGHT AND BMI: ANALYSIS OF 1,673 PATIENTS

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Disclosure Statement

• No financial Interest to disclose
Introduction

• Previous investigations identified differences in weight and clinical characteristics between obese women and men

• We have reported significant variation by sex in weight, BMI, and weight-related medical problems among super-obese women and men pre-operative for BPD/DS

  • BATTLE OF THE SUPER OBESE SEXES: FEMALE VERSUS MALE VARIATION IN PRE-OPERATIVE CLINICAL CHARACTERISTICS AMONG 1,673 SURGICAL PATIENTS UNDERGOING BILIO-PANCREATIC BYPASS/DUODENAL SWITCH (BPD/DS)
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• In the medically fragile super-obese, whether or not post-operative responses to BPD/DS also vary by sex is unknown
Objective

- To identify variations in outcomes between women and men who underwent BPD/DS
Methods

• **Setting:** Participating Surgical Review Corporation Centers of Excellence in Bariatric Surgery, June 2007 through December 2010

• **Exposure:** De-identified patients were evaluated before and after undergoing BPD/DS

• **Main Outcomes and Measures:** Super-obese men and women differ at baseline in body mass and obesity co-morbidities, but these variations may be altered by BPD/DS.
Methods

• Pre-operative and follow-up data at 2, 6, 12, 18 and 24 months after surgery on 1,673 BPD/DS patients
  • From the Surgical Review Corporation’s BOLD database

• Retrospective analysis in two groups:
  • Women (n=1,217) and Men (n=456)

• Data included the following:
  • Weight, BMI, and 29 weight-related medical conditions

• Continuous variables were analyzed using ANOVA with baseline and treatment in the model

• Dichotomous variables were examined by a general linear model with baseline and treatment in the model
  • Modified for binomial distribution
Weight Loss

• Males weighed more both pre- and post-operatively as well as had higher BMI
• Total weight loss was higher for males vs. females at 2, 4, 6, 12, 18, and 24 months
  • Weight and BMI remained higher
Cardiovascular

• At pre-operative baseline, congestive heart failure, hypertension, ischemic heart disease, and dyslipidemia were increased in men
• These variations by sex disappeared by 12 months
• Women were not higher in any cardiovascular parameter
Pulmonary

• Pulmonary variation:
  • Men increase in OSA through 12 months
  • Female increased asthma through 18 months
• No cardiopulmonary variation persisted to 24 months
Endocrine and Metabolic

• Increased male diabetes and gout compared with women at baseline
  • resolved by 12 months
Abdominal and Hepatobiliary

- Female:
  - Baseline abdominal panniculitis, cholelithiasis, GERD, and stress urinary incontinence ($p<0.01$) were higher than were those characteristics among men.
  - Abdominal panniculitis was higher through 12 months.
  - GERD remained dominant through 18 months.
  - Stress urinary incontinence persisted increased through 24 months.

- Male:
  - Higher baseline liver disease.
  - Resolved by 12 months.
Somatic

• Back pain, impaired functional status, lower extremity edema, and musculoskeletal pain did not vary by sex
• Increased female fibromyalgia
  • Resolved by 12 months
Psychological and Behavioral

• Women:
  • Increased depression
    • Resolved after 12 months
  • Mental health diagnosis and psychological impairment higher through 18 months
• Support group attendance was high in women only at 6 months
• Alcohol consumption was higher for men through 18 months
No variation by sex

- Race
- Abdominal hernia
- Angina
- Back pain
- DVT/PE
- Impaired functional status
- Lower extremity edema
- Musculoskeletal pain
- Obesity hypoventilation syndrome
- Peripheral vascular disease
- Pseudotumor cerebri
- Psychomotor impairment
- Pulmonary hypertension
- Substance/tobacco abuse
Results

• Female:
  • Baseline abdominal panniculitis, asthma, cholelithiasis, GERD, stress urinary incontinence, depression, fibromyalgia ($p<0.01$) and mental health diagnosis ($p<0.05$) ($n=8$) were higher than were those characteristics among men.

• Male:
  • Alcohol use, congestive heart failure, hypertension, ischemic heart disease, dyslipidemia, obstructive sleep apnea, diabetes, gout ($p<0.01$), liver disease and unemployment ($p<0.05$) ($n=10$) were higher than female.
Results

• At baseline, 12 months (p<0.0001), and 24 months (p<0.01):
  • Male weight and BMI were higher than female

• At 12 months:
  • Male sleep apnea, alcohol use, and gout remained significantly higher than females
  • Female panniculitis, asthma, mental health diagnosis, depression, psychologic impairment, and stress incontinence remained higher than males

• At 24 months, only stress urinary incontinence varied by sex
Conclusion

• Pre-operative female versus male variations in weight and BMI remain significant after BPD/DS

• Eighteen obesity co-morbidities varied by sex pre-operatively
  • At twelve month following BPD/DS 18 were reduced to 9
  • At twenty-four months all variations by sex were eliminated, except for 1

• Among the super-obese, in long-term outcomes men and women benefit equally from BPD/DS
Any Questions?

"Whew! I had a close call today."