Pre-Operative Risk of Medical Complications Varies by Health Insurance Carrier in Moderately Obese Women: Medicaid v Medicare v Private v Self-Pay

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Introduction: Greater than 40% of American women obese. Every surgical practice must manage these medically challenging patients. Clinical variation by health insurance status in mixed sex bariatric surgery populations is reported. However, investigating moderately obese female surgical patients by insurance status is unknown. The objective of this study was to identify variation in pre-operative clinical characteristics among obese female surgical patints stratified by insurance coverage: Medicaid, Medicare, Private insurance, and Self-Pay.

Methods: Pre-operative data on 53,292 female patients from the Surgical Review Corporation's BOLD database who were scheduled to undergo adjustable gastric banding was analyzed in four groups: Medicaid (n=1,403), Medicare (n=3,273), Private insurance (n=38,439), and Self-pay (n=2,917). Data included age, weight, BMI, race, and 33 obesity-related medical conditions. Statistical analysis: Continuous variables were analyzed using ANOVA with treatment in the model. Distribution of obesity co-morbidities was examined by a general linear model with treatment in the model, modified for binomial distribution.

Results: Medicaid/Medicare/Private/Self-Pay age (42+-12/57+-12/44+-11/43+-12), weight (125+-23/120+-22/119+-19/119+-23), and BMI (47+-8/46+-8/44+-11/43+-12) varied significantly ($p<0.0001$), as did race %: African-American (20/12/13/5), Caucasian (60/75/74/85), Hispanic (13/5/6/5), Asian (0.14/0.12/0.21/0.24), Other (7/8/7/5) ($p<0.0001$). Percent incidences of 33 obesity co-morbidities are listed in the Table. Medicaid patients had the highest rates of asthma, hernia, abdominal panniculitis,

GERD, liver disease, gout, back pain, depression, mental health diagnosis, psychologic impairment, tobacco use ($p<0.0001$), and pseudotumor cerebri ($p=0.007$) ($n=11$); and were the lowest in none. Medicare patients had the highest rates of: angina, CHF, hypertension, ischemic heart disease, DVT/PE, obesity hypoventilation OHS), obstructive sleep apnea OSA), PVD, pulmonary hypertension, diabetes, dyslipidemia, menstrual irregularity, cholelithiasis, stress incontinence, fibromyalgia, impaired functional status, leg edema, musculoskeletal pain, and unemployment ($p<0.0001$) ($n=19$) and lowest in none. Private women had the highest rates of PCOS and alcohol use and were lowest in depression and smoking. Self-Pay experienced the lowest incidence of every obesity co-morbidity except PCOS. Substance use did not vary by insurance.

Conclusions: There is a significant discordance in the pre-operative clinical characteristics of moderately obese women when stratified by insurance status. Asthma, abdominal-hepatobiliary conditions, and psychological/behavioral issues predominate among Medicaid females. Medicare insured obese women suffer most from cardiopulmonary illnesses, diabetes and dyslipidemia, cholelithiasis, and somatic disabilities. Females with private insurance consumed the most alcohol, smoke the least, have the lowest rates of depression, and have no increased incidence of serious weight related medical problems. Self-Pay obese patients appear to be the healthiest insurance group.

For surgeons, it is important to recognize that Medicare patients with obesity are the highest risk insurance group for cardiopulmonary problems and diabetes. This can raise the index of suspicion for these problems, granting the opportunity to address these comorbidities prior to surgical intervention to optimize outcomes. Similarly, advance knowledge of Medicaid related obesity comorbidities can facilitate presumptive management. Of course, insurance type does not determine obesity co-morbidities. Rather, this study revealed variation among the moderately obese women who are drawn to subscribe with each of the coverages examined.