Interaction of Health Insurance Status with Weight-Related Medical Conditions in 58,317 Morbidly Obese Patients with Chronic Excess Caloric Intake

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Introduction

The premier nutritional derangement in the United States today is morbid obesity. Chronic excessive caloric intake causes weight gain to the point of exacerbating and/or causing serious underlying conditions, including diabetes, hypertension, hyperlipidemia and other metabolic conditions, obstructive sleep apnea (OSA), and many others. These medical problems of extreme obesity are known. However, variation in obesity co-morbidities related to the type of health insurance has not been investigated.

Objective

The purpose of this study was to identify differences in the distribution of obesity-related medical and metabolic illnesses according to the health insurance status of morbidly obese patients.

Materials and Methods

Pre-operative data on 58,317 patients from the Surgical Review Corporation's BOLD database who were about to undergo adjustable gastric banding was examined in four groups: Medicaid (n=1,089), Medicare (n=6,455), Private insurance (n=47,114), and Self-Pay (n=3,659). Analysis of variance tested continuous variables. Dichotomous parameter distribution was assessed by the Chi-squared equation.

Results

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>n</th>
<th>Medicaid</th>
<th>Medicare</th>
<th>Private</th>
<th>Self</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>1089</td>
<td>40±11</td>
<td>58±11</td>
<td>44±11</td>
<td>43±12</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>128±25</td>
<td>127±25</td>
<td>125±23</td>
<td>125±27</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>47±8</td>
<td>46±8</td>
<td>45±7</td>
<td>44±8</td>
<td>&lt;0.01</td>
<td></td>
</tr>
<tr>
<td>Sex (% M/F)</td>
<td>54±11</td>
<td>79±21</td>
<td>78±21</td>
<td>79±21</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Cardiopulmonary

- Hypertension: 49±8, 76±16, 53±27, 44±3, <0.0001
- Angina: 3±1, 5±2, 1±8, 1±5, <0.0001
- CHF: 2±2, 6±4, 0±0, 0±0, <0.0001
- DVT/PE: 3±0, 2±0, 2±0, 2±0, <0.0001
- Ischemic Heart Disease: 3±4, 12±2, 3±1, 2±0, <0.0001
- Pulmonary Hypertension: 3±6, 6±1, 3±5, 2±3, <0.0001
- Obstructive Sleep Apnea: 4±0, 5±2, 4±1, 3±1, <0.0001
- Obese Hypoventilation Syndrome: 2±0, 3±4, 1±7, 0±0, <0.0001
- Asthma: 22±4, 21±2, 14±4, 12±0, <0.0001

Abdominal and Hepatobiliary

- Abdominal Hernia: 5±8, 7±9, 4±3, 3±6, <0.0001
- Cholelithiasis: 21±6, 26±6, 16±8, 13±3, <0.0001
- GERD: 47±3, 49±6, 42±0, 38±5, <0.0001
- Liver Disease: 5±0, 5±0, 4±5, 2±7, <0.0001

Stress Urinary Incontinence: 24±38, 25±3, 20±2, 19±2, <0.0001

Metabolic and Hormonal

- Diabetes: 28±19, 39±18, 16±36, 20±5, <0.0001
- Gout: 8±26, 6±8, 1±7, 1±6, <0.0001
- Hyperlipidemia: 32±7, 57±15, 37±83, 33±81, <0.0001
- Irregular Menses: 9±5, 37±6, 20±2, 25±8, <0.0001
- Polycystic Ovarian Syndrome: 4±4, 1±5, 4±0, 4±9, <0.0001
- Pseudotumor Cerebri: 1±8, 1±6, 1±2, 1±0, <0.0229

Musculoskeletal

- Back Pain: 54±36, 58±05, 44±33, 39±66, <0.0001
- Fibromyalgia: 3±8, 7±3, 2±2, 1±8, <0.0001
- Lower Extremity Edema: 25±07, 37±22, 21±2, 18±34, <0.0001
- Musculoskeletal Pain: 37±92, 35±86, 37±87, 33±34, <0.0001

Psychological

- Mental Health Diagnosis: 16±35, 14±77, 10±4, 9±06, <0.0001
- Disability: 3±0, 2±0, 1±9, 0±87, <0.0001
- Depression: 40±2, 41±4, 30±0, 31±24, <0.0001
- Psychological Impairment: 22±27, 22±0, 12±36, 12±76, <0.0001

Socioeconomic

- Alcohol Use: 18±55, 21±6, 33±91, 33±18, <0.0001
- Substance Abuse: 0±73, 0±45, 0±36, 0±5, 0±54, <0.0001
- Tobacco Use: 8±54, 6±49, 6±66, 6±81, 0±64, <0.0001
- Unemployed: 34±62, 7±93, 8±46, 8±66, <0.0001

Conclusions

- Obesity calorie/protein derangements affect Medicare patients most severely.
- Medicare BMI is similar to the other insurance groups, but, nevertheless, nearly all metabolic, cardiopulmonary, GI, hepatobiliary, musculoskeletal and psychological sequelae of obesity are manifested most frequently in Medicare patients.
- The increased Medicare age may contribute to the increased number of co-morbidities, given that they most likely have been exposed to obesity longer than their counterparts (i.e. Obesity Years).
- High Medicare unemployment may be a consequence of increased co-morbidities.
- Medicaid patients are the youngest and heaviest, but have co-morbidities similar to Private and Self-Pay patients, as well as high unemployment.
- Self-Pay has the lowest overall weight, BMI, and co-morbidities.
- These medical, psychological, and socioeconomic variations among the major health insurance categories should be considered when managing the nutritional and medical conditions of morbidly obese patients.
- Practitioners should have an increased index of suspicion for serious weight-related complications based on insurance status, which could be life-saving.