Population Distribution of Mayo Clinic Cardiac Rehabilitation

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Abstract

Cardiac rehabilitation (CR) programs have been shown to be integral in medical management for secondary prevention with cardiovascular events. Therefore, utilization has increased over the past few decades resulting in patients of all ages (children to nonagenarians) and multiple diagnoses now participating in outpatient cardiac rehabilitation. With this increase in utilization, a clear understanding of the demographics of CR patients is essential.

Introduction

The purpose of this study is to clarify and define the CR population at Mayo Clinic by demographics and diagnosis.

Purpose

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Methods

Data was extracted from medical records, using resources from the Rochester Epidemiology Project, on patients who have participated in CR between 2002-2012. Independent variables include age, gender, BMI, body fat %, CR sessions, smoking history, treadmill METs, and comorbidities; hypertension, diabetes, COPD, and obstructive sleep apnea. These variables were compared to the referral diagnosis (dependent variable) for each patient. Dependent variables include: PCI, CABG, MI, angina, heart failure, valve surgeries, and other (any reason for CR services not previously listed). Data are described using mean ± standard deviation or number (percentages). Chi-Square, Student’s t-tests, and analysis of variance were used to determine statistical differences within and across groups.

Results

The population included 2,508 patients (1,740 (70%) male vs. 768 (30%) female, p<0.001). Demographics include age: 64.4±12.9 (Male: 63.1±12.2 vs. Female: 67.2±13.7, p<0.001), BMI: 29.7±5.9 (Male: 29.6±6.0 vs. Female: 29.4±6.3, p<0.05), Body Fat %: 26.2±6.7 (Male: 24.4±5.7 vs. Female: 26.5±6.0, p<0.05), Treadmill METs: 8.1±2.2 6.5±2.0* (Male: 7.8±2.2 vs. Female: 7.6±2.0, p<0.05), Diabetes: 1094 (44%) 261 (48%) 21 (26%) 726 (43%) 7 (50%) 35 (44%) 23 (47%) 13 (50%), Hypertension: 1458 (58%) 302 (55%) 51 (63%) 1001 (60%) 7 (50%) 32 (41%) 35 (71%) 19 (73%), ever smoker: 1082 (43%) 218 (40%) 32 (40%) 764 (45%) 4 (29%) 29 (37%) 14 (29%) 10 (39%), COPD: 494 (20%) 117 (21%) 21 (26%) 306 (18%) 5 (36%) 27 (34%) 8 (16%) 2 (8%), Stroke: 106 (4%) 26 (5%) 6 (8%) 90 (5%) 1 (7%) 1 (1%) 1 (2%) 0 (0%), Valve surgeries: 62.2±15.3, and other: 65.0±16.3, overall p>0.05. Number of sessions: PCI: 30.6±6.1 vs. Female: 29.4±6.3, p<0.001). Significant differences in sex to see diagnosis includes: PCI: Male: 1,166 (46%) vs. Female: 579 (22%); CABG: Male: 77 (3%) vs. Female: 9 (1%); MI: Male: 868 (34%) vs. Female: 160 (6%); Angina: Male: 2,166 (85%) vs. Female: 1,700 (67%) vs. Other: 20 (1%).

Conclusions

• The most common referral diagnosis included PCI whereas the least common was angina and other.
• The condition with the greatest number of completed CR sessions was smoking history. Treadmill METs, and comorbidities; hypertension, diabetes, COPD, and obstructive sleep apnea.
• Independent variables include PCI, CABG, MI, angina, heart failure, valve surgeries, and other (any reason for CR services not previously listed).
• Data are described using mean ± standard deviation or number (percentages). Chi-Square, Student’s t-tests, and analysis of variance were used to determine statistical differences within and across groups.

Sex Differences

• Sex differences across referral diagnosis for cardiac rehabilitation participants.

Table 1: Results

<table>
<thead>
<tr>
<th>Referral Diagnosis</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI</td>
<td>261 (48%)</td>
<td>7 (50%)</td>
</tr>
<tr>
<td>CABG</td>
<td>51 (63%)</td>
<td>7 (50%)</td>
</tr>
<tr>
<td>MI</td>
<td>306 (18%)</td>
<td>7 (50%)</td>
</tr>
<tr>
<td>Angina</td>
<td>1001 (60%)</td>
<td>9 (1%)</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>35 (71%)</td>
<td>3 (47%)</td>
</tr>
<tr>
<td>Valve Surgery</td>
<td>8 (16%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Other</td>
<td>19 (73%)</td>
<td>13 (50%)</td>
</tr>
</tbody>
</table>

Figure 1: Sex differences across referral diagnosis for cardiac rehabilitation participants.

Figure 2: Sex differences comparing demographics of cardiac rehabilitation participants.

Figure 3: Sex differences analyzing the different diagnoses in cardiac rehabilitation.

References

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Conclusion

• These data describe the population receiving CR programming at Mayo Clinic, Rochester, Minnesota from 2002-2012.
• The most common referral diagnosis included PCI whereas the least common was angina and other.
• The condition with the greatest number of completed CR sessions was smoking history.
• These data help us to better understand the CR population being served and allow us to target programming to those who may otherwise under-utilize these critical services.