Reduction in Length of Stay by Early Oral Feeding

Vivien Grayson  
*Miami Cancer Institute*, vivienG@baptisthealth.net

Victoria McCue  
*Doctors Hospital*, victoriamc@baptisthealth.net

James Adefisoye  
*Homestead Hospital*, adejames2000@gmail.com

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Clinical and financial perspectives. LOS has an average of 5.4 days in the inpatient setting and 0.2 days in the ambulatory setting (Wier, Steiner, & Owens, 2015). Many factors can affect a patient’s post-op LOS such as age, gender, procedure type and anesthesia type utilized. However, other factors such as early nutrition warrants further research. According to Fuji et al. (2014), many physicians wait until the patient shows signs of the return of bowel function, to give the patient a clear liquid diet and then advance as tolerated. However, there are likely benefits to starting a post-op patient with an early oral intake since eating increases bowel motility (Fuji et al., 2014).

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INTRODUCTION / BACKGROUND

Length of stay (LOS) is the duration that a patient spends during an episode of hospitalization and is important to healthcare organizations from both clinical and financial perspectives. LOS has an average of 5.4 days in the inpatient setting and 0.2 days in the ambulatory setting (Wier, Steiner, & Owens, 2015). Many factors can effect a patient’s post-op LOS such as age, gender, procedure type and anesthesia type utilized.

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RESEARCH QUESTION

Among postoperative adults hospitalized within medical-surgical units at a Magnet hospital in the Southeastern United States, feeding and LOS among postoperative adults hospitalized within medical-surgical units at a Magnet hospital in the Southeastern United States.

METHODS

RESEARCH DESIGN

The study employed a quasi-experimental ex-post facto study design, using retrospective data. The data used were de-identified Electronic Health Record (EHR) secondary data set.

POPULATION

Adults who underwent surgical procedures between January 2017 and July 2017 (n = 407).

INSTRUMENT

The instrument utilized was the Charlson Co-Morbidity Index (CCI). The CCI measures mortality risk and liability for disease. A CCI index score was calculated for each patient record based on ICD 10 codes for all primary and secondary diagnoses.

VARIABLES

• Dependent Variables
  • Length of Stay (LOS)
  • Procedure Type (Laparoscopic, Open)
  • Surgery Procedure Type (Laparoscopic, Open)
  • Charlson Co-Morbidity Index (CCI).

• Independent Variables
  • Age
  • Gender (Male, Female)
  • Feeding Status (Early, Late)
  • Procedure Type (Laparoscopic, Open)
  • Charlson Co-Morbidity Index (CCI).

ANALYSIS

• Summary statistics (median, inter-quartile range and frequency) were computed each variable as appropriate.
• Similarities and differences in patient characteristics and in the LOS between those who were fed early and those who were not were explored.
• Multiple Linear Regression was used to examine association between LOS and other variables.
• Variable selection for final model was carried out using stepwise method with forward and backward.

RESULTS

Table 1: Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
<th>Median (IQR) LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay (All Patients)</td>
<td>407 (100%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>157 (38.57%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>Female</td>
<td>250 (61.43%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>Feeding Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>392 (96.31%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>Late</td>
<td>15 (3.69%)</td>
<td>3.00 (2.00 – 3.50)</td>
</tr>
<tr>
<td>Procedure Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>212 (52.09%)</td>
<td>2.00 (1.00 – 2.00)</td>
</tr>
<tr>
<td>Open</td>
<td>195 (47.91%)</td>
<td>3.00 (2.00 – 4.00)</td>
</tr>
<tr>
<td>CCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>262 (64.37%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>1</td>
<td>80 (19.66%)</td>
<td>2.00 (1.00 – 3.00)</td>
</tr>
<tr>
<td>2</td>
<td>35 (8.60%)</td>
<td>3.00 (2.00 – 5.00)</td>
</tr>
<tr>
<td>3</td>
<td>7 (1.72%)</td>
<td>3.00 (3.00 – 4.00)</td>
</tr>
<tr>
<td>4</td>
<td>14 (3.44%)</td>
<td>4.00 (3.00 – 6.50)</td>
</tr>
<tr>
<td>5</td>
<td>5 (1.23%)</td>
<td>6.00 (4.00 – 7.00)</td>
</tr>
<tr>
<td>6</td>
<td>4 (0.98)</td>
<td>6.00 (4.75 – 7.75)</td>
</tr>
</tbody>
</table>

Note: “CCI = Charlson Co-Morbidity Index Score”

Table 2: Final Model from Multiple Linear Regression

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (B)</th>
<th>SE</th>
<th>95% CI</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.3801</td>
<td>0.4122</td>
<td>1.5697 to 3.1904</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Age</td>
<td>0.0136</td>
<td>0.0066</td>
<td>0.0005 to 0.0267</td>
<td>.0412</td>
</tr>
<tr>
<td>CCI</td>
<td>0.4974</td>
<td>0.0966</td>
<td>0.3074 to 0.6874</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Surgery Procedure</td>
<td>-1.3266</td>
<td>0.2449</td>
<td>-1.8081 to -0.8451</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Coefficient (β)

R2 = 0.2438
Adjusted R2 = 0.2382
MSE = 4.4526
F-ratio = 43.31
p = 0.007

Note: “Procedure type was coded 1 = laparoscopy; 0 = open.”

Results from the regression analysis shows that, a unit increase in age was associated with a 0.014 days increase in LOS (p = .041). Each unit increase in the CCI score was also associated with 0.497 days longer LOS (p < .001). Open procedures resulted in 1.3 days longer LOS compared with laparoscopic procedures (p < .001). The results showed no significant association between gender and LOS, thus gender is omitted from table 2. Also, the results showed no significant association between early feeding and LOS, thus early feeding is omitted from table 2. It was however noted that patients with early feeding had a lower LOS (Median = 2.00, IQR = 1.00 – 3.00) compared with those fed later (Median = 3.00, IQR = 2.00 – 3.50).

IMPlications FOR PRACTICE

Although early feeding was not statistically significant, a decrease in LOS was noted. The implications surrounding LOS are profound for healthcare organizations and patients. Nurses can enhance the recovery period for post-op patients and decrease LOS by promoting early oral feeding.

REFERENCES
