The Impact of Diabetes Mellitus on Length of Stay and Direct Hospital Costs after Minimally Invasive Transforaminal Lumbar Interbody Fusion

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Disclosures


Kern Singh, MD

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• Consultant – Depuy, Zimmer, Stryker
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Introduction

- *Diabetes mellitus* (DM) is one of the most prevalent conditions in the United States.

- In spine literature, DM has been associated with increased risk for *postoperative complications*, increased length of *inpatient stay*, and increased *costs* for a heterogeneous mixture of procedure types.
Aims and Objectives

To determine if the presence of DM as a comorbidity is associated with inpatient length of stay (LOS) or direct hospital costs after minimally invasive transforaminal lumbar interbody fusion (MIS TLIF).
Methodology

- Retrospectively review prospectively-maintained database
- 100 patients that underwent a primary, single-level MIS TLIF for degenerative pathology from 2008 to 2016
- Patient groups were propensity matched for age, gender, and comorbidity burden

100 Primary, Single-level MIS TLIF Patients

Diabetic N = 50

Non-Diabetic N = 50
Methodology

• Variables Analyzed
  • Patient demographics
  • Operative variables
  • Length of stay
  • Complications
  • Direct hospital costs

• Statistical Analyses
  • Student’s t-test
  • Pearson’s Chi-square analysis
  • Multivariate linear regression
Results

No differences in demographics identified between diabetics and nondiabetics.

<table>
<thead>
<tr>
<th></th>
<th>No Diabetes (N=50)</th>
<th>Diabetes (N=50)</th>
<th>†p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean ± SD, years)</td>
<td>58.9 ± 10.1</td>
<td>58.5 ± 9.7</td>
<td>0.837</td>
</tr>
<tr>
<td>Gender (n)</td>
<td></td>
<td></td>
<td>0.383</td>
</tr>
<tr>
<td>Female</td>
<td>34.0% (17)</td>
<td>26.0% (13)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>66.0% (33)</td>
<td>74.0% (37)</td>
<td></td>
</tr>
<tr>
<td>Body Mass Index (n)</td>
<td></td>
<td></td>
<td>0.870</td>
</tr>
<tr>
<td>Non-Obese (&lt;30 kg/m²)</td>
<td>54.0% (27)</td>
<td>36.0% (18)</td>
<td></td>
</tr>
<tr>
<td>Obese (≥30 kg/m²)</td>
<td>46.0% (23)</td>
<td>64.0% (32)</td>
<td></td>
</tr>
<tr>
<td>Smoking status (n)</td>
<td></td>
<td></td>
<td>0.130</td>
</tr>
<tr>
<td>Non-Smoker</td>
<td>62.0% (31)</td>
<td>76.0% (38)</td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>38.0% (19)</td>
<td>24.0% (12)</td>
<td></td>
</tr>
<tr>
<td>Charlson Comorbidity Index (mean ± SD)</td>
<td>3.0 ± 1.3</td>
<td>3.2 ± 1.7</td>
<td>0.471</td>
</tr>
</tbody>
</table>

SD = standard deviation
†p-value calculated by chi-square analysis (categorical) or Student’s t-test (continuous)
No differences in perioperative characteristics, length of stay, or complication rate between diabetics and nondiabetics.
No differences in inpatient length of stay between diabetics and nondiabetics following MIS TLIF.
Diabetic status was not associated with differences in total direct hospital costs or cost subcategories after MIS TLIF.
Discussion

● Diabetes mellitus was NOT associated with increased length of stay or hospital costs after single-level MIS TLIF

● Limited operative exposure and tissue trauma in MIS TLIF may mitigate the risk of complications, and thus, length of stay and hospital costs in diabetic patients
Limitations

- Other **comorbidities** were not accounted for in this study.

- Patients were not substratified by insulin-dependent status or by Hemoglobin A1c levels.

- Complications after discharge or readmissions were not recorded.
Conclusions

- Diabetes was NOT associated with higher complication rates, length of stay, or hospital costs after primary, single-level MIS TLIF.

- Reduced extent of operative exposure and tissue trauma in MIS TLIF may mitigate the risk of complications in diabetic patients, possibly preventing extensions in hospital length of stay and costs.
REFERENCES

THANK YOU!

Contact us about questions and membership opportunities

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