Resident Involvement is Not Associated with Increased Risk of Postoperative Complications After Arthroscopic Knee Surgery: A Propensity Matched Study

Presented by Zain M Khazi, BS
I (and/or my co-authors) have something to disclose.

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None relevant to the topic of this study.
Introduction and Hypothesis

• Knee arthroscopy is one of the most common orthopedic procedures performed. Therefore, residents need to be adequately trained to be proficient in performing various arthroscopic procedures of the knee. However, the impact of resident participation during knee arthroscopy is poorly understood.

• **Hypothesis** - Resident involvement is not associated with increased risk for 30-day complications after arthroscopic procedures of the knee.
Methods

• Retrospective cohort study of knee arthroscopy cases from the National Surgical Quality Improvement Program database from ’06-12.
  • Patients undergoing concurrent open procedures or diagnosis of septic knee arthritis/osteomyelitis around the knee were excluded.

Methods- Cohorts

• Resident involved and non-resident cohorts were matched for age, sex, body mass index, obesity, smoking history, ASA classification, and procedure type. After matching:
  • Resident involved cohort = 1,474 cases
  • Non-Resident cohort = 1,474 cases

• Outcomes Assessed: Impact of resident involvement on 30-day postoperative complications, length of stay (LOS), and operative time.
Statistical Analyses

• Matched cohorts were compared for preoperative patient demographics, comorbidities, laboratory values, and postoperative complications using Fisher’s exact test or Pearson’s Chi-square test for categorical variables and Wilcoxon Rank Sum test for continuous variables.

• Wilcoxon Rank Sum tests were performed to compare operative time and LOS between the cohorts.
Results

Rate of 30-day complications were 1.11% in both the non-resident and resident involved cohorts (P=1.000).

No significant difference in postoperative surgical (P=0.2498) or medical (P=0.5111) complications between the cohorts.
Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-Resident n = 1,447</th>
<th>Resident Involved n = 1,447</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time, min (SD)</td>
<td>66.8 (53.8)</td>
<td>69.8 (53.1)</td>
<td>0.002</td>
</tr>
<tr>
<td>Length of Hospital Stay, days (SD)</td>
<td>0.21 (0.99)</td>
<td>0.85 (1.39)</td>
<td>0.0332</td>
</tr>
</tbody>
</table>

Bold: significant finding (P<0.05), SD: standard deviation

Comparison of operative times and LOS

Resident involved cases had significantly longer operative times (P=0.0002), and LOS (P=0.0332) when compared with non-resident cases.
Discussion

• According to the American Council for Graduate Medical Education (ACGME), successfully performing at least 30 knee arthroscopy procedures is one of the core competencies for orthopedic residents required prior to graduation.

• This study noted significantly longer operative time and length of hospital stay which we argue is likely clinically insignificant. Additionally, academic centers are commonly referral centers for complex procedures which may increase operative time and length of hospital stay.
Limitations

• The database does not allow for evaluation of orthopedic parameters of interest including extrusion index, time before presentation, and cause of injury.

• Details regarding the extent of resident involvement during surgery was not recorded. Thus, determining whether resident involvement was purely observational or performing the procedure under supervision cannot be ascertained.
Thank You

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