Operative Time Prognosticates Complication Treatment and Long-term Abdominal Morbidity in DIEP Flap Breast Reconstruction

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We have no disclosures.
Introduction

• Generally, operative time positively correlates with postoperative morbidity
• What about in DIEP flap breast reconstruction?
Study Objective

• In DIEP flaps, Identify impact of operative time on
  – Complication treatment
  – Number of complications
  – Long-term complications (i.e. abdominal bulge)
Methods – Inclusion/Exclusion Criteria

• All cases performed by two co-surgeons at single institution

• Inclusion/Exclusion Criteria
  – Minimum 1 Year follow-up Time
  – Bilateral DIEP Flap
Methods – Independent Variable

• Operative Time = Skin incision to closure in Hours
Methods – Covariates for Multivariate

• 19 Covariates for Risk-Adjustment
  – Age
  – BMI
  – Race
  – Smoking
  – Diabetes
  – Hypertension
  – Autoimmune Disease
  – Radiation Therapy
  – Chemotherapy
  – Reconstruction Timing
  – Umbillectomy
  – Arterial Revision
  – Venous Revision
  – Perforator Number
  – Single- vs Multi-row Perforator
  – Perforator Size
  – Microsurgeon Experience (early, <5 year vs later career, 5-10 year)
Methods – Dependent Variable

• Complications necessitating
  1. Outpatient Treatment
  2. Readmission Treatment
  3. Extended Hospital Stay for Treatment

• Number of Treated Complications

• Abdominal Bulge
Results – Overall Complication Treatment

• 336 bilateral DIEP flap breast reconstructions (out of 2232 breast reconstructions) met criteria
Results – Overall Complication Treatment

- All Treated Comp \textcolor{red}{\uparrow} hourly
- Hospital Course \textcolor{red}{\uparrow} 25%

<table>
<thead>
<tr>
<th></th>
<th>P.value</th>
<th>Odd Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpatient Treatment</td>
<td>&lt;0.0001</td>
<td>1.0953</td>
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<tr>
<td>Readmission Treatment</td>
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<td>Extended Hospital Stay for Treatment</td>
<td>&lt;0.0001</td>
<td>1.2516</td>
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</tbody>
</table>

Predicted Probability of Overall Complication Requiring Extended Hospital Stay for Treatment Per Hour of Operative Time

Operative Time (HOURS)

Probability of Treatment
# Results – Breast Complication Treatment

- **All Treated Breast Flap-site Comp** ↑ hourly
- **Readmission** (↑ 25%)
- **Hospital Course** (↑ 26%)

<table>
<thead>
<tr>
<th>Breast Flap-Site Complications</th>
<th>P.value</th>
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<td>Extended Hospital Stay for Treatment</td>
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</table>
## Results - Ab & Medical Complication Treatment

- **All Treated Ab Donor-Site and Medical Comp** ↑ hourly

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<th>Abdominal Donor-Site Complication</th>
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<td>Readmission Treatment</td>
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<td>Extended Hospital Stay For Treatment</td>
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### Results – Abdominal Bulge

- **Bulge (↑ 25% hourly)**

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<th>P.value</th>
<th>Odd Ratio</th>
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</thead>
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<tr>
<td>Abdominal Bulge Occurrence</td>
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</tbody>
</table>
Results – Number of Treated Complications

- After risk-adjustment, we found:

- Linear Relationship - Operative Time & Number of Overall Treated Complications
  - Beyond 5 hours = 50+% risk
  - Beyond 10 hours = 1+ treated complication
Conclusion

• In DIEPs, each hour increases
  – All treated complications
    • Especially highly-morbid complications requiring hospital course or readmission treatment (25%)
  – Number of Treated Complications
  – Abdominal Bulge (25%)
Thank You!

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Statistician - Zhiguo Shang, PhD