Complication rates and short-term outcomes similar after hammertoe correction in older patients

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Disclosures

NO CONFLICTS TO DISCLOSE

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Our disclosures in the Final AOFAS Mobile App.
We have no potential conflicts with this presentation.
Hammertoe Correction

- Hammertoe deformities are one of the **most common lesser toe deformities** and are more common in the elderly population\(^1, 2\)

- Estimated economic burden of foot and ankle surgeries for US Medicare population was **$11 billion** in 2011, **up 38.2%** since 2000\(^3\)
  - Hammertoe repair was the **top procedure**

- Geriatric patients are at **increased risk of surgical complications**\(^4\)

- No studies exist that look specifically at **outcomes of hammertoe correction surgery in the geriatric patient population**
To determine if older patients (≥65 years old) have inferior outcomes compared to younger patients after surgical correction of hammertoe deformities.
Methods

• Design and Population:
  – Retrospective observational study
  – All patients who underwent surgical correction of hammertoe
    • August 1, 2014-December 1, 2016
  – Patients divided into 2 groups:
    • ≥ 65 years old or < 65 years old

• Outcomes measured:
  – Visual Analogue Scale (VAS)
    • Pre-op, 6 months post-op, 12 months post op
  – Short Form Health Survey (SF-36)
    • Pre-op, 6 months post-op, 12 months post op
  – Postoperative complications

• Statistics:
  – Mean improvements and SEM for all VAS, PCS, and MCS surveys at each time point for both groups
  – Results assessed for statistical significance using a paired t-test
  – Multiple linear regression models using several covariates
    • Age, smoking, diabetes, rheumatoid arthritis, blood thinner use
  – Logistic regression models and odds ratios
Results

- 58 patients enrolled
- 47 patients had at least 6 months of follow-up data (81.03% follow-up rate)
  - 7 males, 40 females
  - Average age 60.9 years old
- No significant difference between younger and older groups
- No covariates tested showed any significant association with change in VAS, PCS, or MCS

<table>
<thead>
<tr>
<th>Covariates Tested</th>
<th>&lt; 65 years (n=26)</th>
<th>≥ 65 years (n=21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever smoker, n (%)</td>
<td>4 (15.4)</td>
<td>5 (10.6)</td>
<td>0.486</td>
</tr>
<tr>
<td>Diabetes or prediabetes, n (%)</td>
<td>3 (6.4)</td>
<td>1 (2.1)</td>
<td>0.617</td>
</tr>
<tr>
<td>Rheumatoid arthritis, n (%)</td>
<td>3 (6.4)</td>
<td>2 (4.3)</td>
<td>1.000</td>
</tr>
<tr>
<td>BMI, mean (95% CI)</td>
<td>29.7 (27.1, 32.3)</td>
<td>27.9 (25.3, 30.5)</td>
<td>0.301</td>
</tr>
<tr>
<td>On blood thinners, n (%)</td>
<td>7 (15.6)</td>
<td>8 (17.8)</td>
<td>0.347</td>
</tr>
</tbody>
</table>
Overall **significant improvement** in **mean VAS scores**.  
No significant difference in **mean improvement of VAS scores** between <65 year old and ≥65 year old groups post-operatively.
Overall **significant improvement** in **mean PCS** in both age groups. **No significant difference** in **mean improvement of PCS** between <65 year old and ≥65 year old groups post-operatively.
Complications

### Complication rate per hammertoe correction

<table>
<thead>
<tr>
<th></th>
<th>&lt; 65 years old</th>
<th>≥ 65 years old</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall complication rate</td>
<td>13.5% (5/37)</td>
<td>10.3% (4/39)</td>
<td>0.665</td>
</tr>
</tbody>
</table>

#### Complications reported

<table>
<thead>
<tr>
<th></th>
<th>&lt; 65 years old</th>
<th>≥ 65 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valgus malalignment</td>
<td>2.7% (1/37)</td>
<td>0.0% (0/39)</td>
</tr>
<tr>
<td>DVT/PE</td>
<td>5.4% (2/37)</td>
<td>0.0% (0/39)</td>
</tr>
<tr>
<td>Pain/hardware removal</td>
<td>0.0% (0/37)</td>
<td>2.6% (1/39)</td>
</tr>
<tr>
<td>Other</td>
<td>0.0% (0/37)</td>
<td>5.1% (2/39)</td>
</tr>
<tr>
<td>Recurrence</td>
<td>0.0% (0/37)</td>
<td>2.6% (1/39)</td>
</tr>
<tr>
<td>Revision</td>
<td>5.4% (2/37)</td>
<td>0.0% (0/39)</td>
</tr>
</tbody>
</table>

**No significant difference** in **complication rates** between <65 year old and ≥65 year old groups.
## Evaluation

### Strengths

- >80% follow-up rate
- Representative study population
- Validated questionnaires (VAS and SF-36)
- Single surgeon

### Limitations

- Retrospective design
- Small study population
- Susceptible to type II error
- Possibility of recall bias

### Future Directions:

- Examine outcomes in larger cohort
- Compare radiologic outcomes of hammertoe deformities pre- and post-operatively
Conclusions

• Outcomes of surgical correction of hammertoe deformities in patients 65 and older were **not significantly different** from outcomes in patients under the age of 65.

• Overall improvement in VAS and PCS of the SF-36 was **statistically significant** for all participants.
Resources


