Assessment of Recovery From Geriatric Ankle Fracture Using The Life Space Mobility Assessment (LSA)

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## Disclosures

### All Authors

<table>
<thead>
<tr>
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<th>Role</th>
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<td>Industry funds to Emory for my research</td>
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<td>Other</td>
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Geriatric Ankle Fractures

• Third most common fracture in elderly

• Ideal treatment paradigm unclear

• Current outcome measures ineffective in assessing actual mobility
  – Floor/ceiling effect
  – True deficits under reported and under appreciated
Introduction

Primary Purpose
1. Assess LSA's effectiveness in measuring post-injury mobility following geriatric ankle fractures

Secondary Purposes
1. To identify any differences between operative vs non-operatively managed ankle fractures

Hypothesis
- LSA would demonstrate:
  • An effective assessment of mobility from geriatric ankle fractures
  • That geriatric ankle fractures are severely limiting
  • Operatively managed ankle fractures to have improved mobility post-op

Example Survey
Methods

• Prospective observational study
• Inclusion criteria:
  – Age > 65
  – Any type of ankle fracture
• Treatment modality chosen by attending on patient specific basis
• LSA administered at initial visit (pre-injury status), 6 weeks, 3 months, 6 months, and 12 months
  – SF-36 and VAS administered at 6 months and 12 months as current standard of care in this clinic
• Unadjusted means calculated and compared
## Results

### Descriptive Statistics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Overall</th>
<th>Non-op Treatment</th>
<th>ORIF Treatment</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>5/20 (25%)</td>
<td>2/9 (22%)</td>
<td>3/11 (27%)</td>
<td>1.0000</td>
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<tr>
<td>Female</td>
<td>15/20 (75%)</td>
<td>7/9 (78%)</td>
<td>8/11 (73%)</td>
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</table>

### Age

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Non-op Treatment</th>
<th>ORIF Treatment</th>
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</tr>
</thead>
<tbody>
<tr>
<td>74.8 (6.2), (n=20)</td>
<td>74.2 (7.3), (n=9)</td>
<td>75.4 (5.4), (n=11)</td>
<td>0.6969</td>
<td></td>
</tr>
</tbody>
</table>

### Life Space scores over time, regardless of treatment

<table>
<thead>
<tr>
<th>Time</th>
<th>n</th>
<th>Mean (std)</th>
<th>Med (Q1, Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>18</td>
<td>86.7 (28.1)</td>
<td>90 (80, 104)</td>
</tr>
<tr>
<td>6 Week</td>
<td>19</td>
<td>20.7 (24.5)</td>
<td>16 (6, 24)</td>
</tr>
<tr>
<td>3 Months</td>
<td>15</td>
<td>37.0 (34.4)</td>
<td>26 (12, 80)</td>
</tr>
<tr>
<td>6 Months</td>
<td>10</td>
<td>49.8 (38.3)</td>
<td>45.3 (9.5, 8.2)</td>
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<tr>
<td>12 Months</td>
<td>10</td>
<td>73.6 (38.3)</td>
<td>63.3 (46, 120)</td>
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</tbody>
</table>
Results: Non-operative
Results: Operative
## Results: VAS & SF-36 Physical

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Non-op Treatment</th>
<th>ORIF Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean (std)</td>
<td>Med (Q1, Q3)</td>
</tr>
<tr>
<td>VAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Months</td>
<td>9</td>
<td>2.2 (2.8)</td>
<td>1 (0, 4)</td>
</tr>
<tr>
<td>12 Months</td>
<td>10</td>
<td>1.9 (2.1)</td>
<td>1.5 (0, 4)</td>
</tr>
<tr>
<td>SF 36 Physical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Months</td>
<td>8</td>
<td>55.4 (15.3)</td>
<td>55.6 (47.1, 68.3)</td>
</tr>
<tr>
<td>12 Months</td>
<td>9</td>
<td>82.6 (16.4)</td>
<td>86.5 (79.5, 92)</td>
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</table>
Discussion: Is LSA effective?

**LSA results regardless of treatment:**
- LSA successful in quantifying changes in post op mobility
- Ankle fractures are significantly limiting in the geriatric population
- 6 weeks: LS Level 1-2 (bedroom/home) with significant assistance
- 6 months: LS Level 3-4 (neighborhood/town) also requiring assistance
- 12 months: Saw a loss of 1 LS Level from pre-injury status

**LSA results based on treatment:**
- Operatively treated patients’ scores returned to baseline while non-operative patients did not
- Non-op patients saw a loss of 1 LS level at 12 months
- Consistent with results seen in literature regarding improved results with operative management

**Caveats:**
- Unmatched cohorts. Did not control for confounding variables
- Observational conclusion
Conclusion

• The LSA showed a significant decline in mobility in this population throughout the 12-month recovery
  – Patients should be counseled accordingly
    • Rarely left bedroom or house for first 6 weeks of recovery
    • Left neighborhood or town infrequently and with significant assistance out to 6 months
• The LSA demonstrated an improvement in mobility in operatively managed ankle fractures albeit in an unmatched cohort
  – Results of SF-36 Physical mirrored the LSA
  – Operatively managed patients demonstrated slightly less pain at 12 months
• This is an effective pilot study for future investigations utilizing the LSA within the Orthopaedic patient population
References


