When to Expect the Unexpected:
A Timeline of Complications in Lower Limb Osseointegrated Protheses

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No Relevant Disclosures
Background

- Osseointegrated implants anchor a prosthesis directly to the residual limb
- Sparse temporal data due to novelty and low case volume
Methods

- Retrospective chart review: 68 patients, 70 lower limb implants, October 2017 – February 2022.

- Longitudinal Analysis: 9 months of follow-up, Time-to-Event Curve.
Demographics

<table>
<thead>
<tr>
<th>N</th>
<th>70</th>
</tr>
</thead>
</table>

Gender
- 48 males : 22 females

Amputation level
- 41 AKA : 29 BKA

Age at amputation
- 38.2 years [2–69]

Age at implantation
- 46.7 years [20–70]

Length of follow-up
- 30.4 months [9–64]
## Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>N=70</th>
<th>Median Time of Occurrence (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Tissue Infection</td>
<td>27 (39%)</td>
<td>77</td>
</tr>
<tr>
<td>Limb Fracture</td>
<td>6 (9%)</td>
<td>111</td>
</tr>
<tr>
<td>Hardware Failure</td>
<td>5 (7%)</td>
<td>139</td>
</tr>
<tr>
<td>Soft Tissue Redundancy</td>
<td>10 (14%)</td>
<td>368</td>
</tr>
<tr>
<td>Osteomyelitis</td>
<td>7 (10%)</td>
<td>380</td>
</tr>
<tr>
<td>Neuroma</td>
<td>11 (16%)</td>
<td>455</td>
</tr>
</tbody>
</table>
Longitudinal Analysis

Time-To-Event: Soft Tissue Infection
Longitudinal Analysis

Time-To-Event: Limb Fracture
Longitudinal Analysis

Time-To-Event: Neuroma

Number at risk

<table>
<thead>
<tr>
<th>Days from Surgery</th>
<th>0</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number at risk</td>
<td>70</td>
<td>70</td>
<td>68</td>
<td>62</td>
<td>57</td>
<td>52</td>
<td>42</td>
<td>35</td>
<td>26</td>
<td>22</td>
<td>17</td>
</tr>
</tbody>
</table>

95% CI Survivor function
Conclusions

• Osseointegration is safe and effective

• Complications have predictable time courses
  • Soft tissue infections, hardware failure, and limb fractures occur shortly after implantation
  • Neuromas, osteomyelitis, and soft tissue revisions occur at later time points
References


Thank you!

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