Ankle arthroplasty treatment options have advanced over the recent years to include total ankle arthroplasty (TAA). There are known long term consequences of ankle arthroplasty such as aseptic loosening and infection. As the popularity of ankle arthroplasty increases, the need for revision total ankle arthroplasty is also increasing. There is a paucity of reported functional outcomes for revision ankle arthroplasty in the literature. This study aims to assess the functional outcomes following revision TAA and compare these with functional outcomes for patients following primary TAA. Our hypothesis is that patients with revision TAA will perform more poorly on functional tests than patients with a primary TAA.

This is a retrospective review conducted at a tertiary care center. All patients who underwent revision TAA using the INBONE II implant at our institution will be included in a retrospective case analysis. Additionally, patients who underwent primary TAA with the INBONE II implant were also included as a separate group. Included patients had complete records following TAA with a minimum two year follow-up from the time of surgery. Functional outcomes were measured using patient self-reported questionnaires administered via mail survey. This data collected for both a primary TAA and a revision TAA group was compared amongst each other. Short form 36 (SF-36) and Foot and Ankle Ability Measure (FAAM) scores were utilized as a means to assess patient functional outcomes. Data was analyzed using a Mann-Whitney U test and utilized to determine if there was a significant difference between each study population.

Methods and Materials

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Revision Arthroplasty Demographics

Table 1: Data regarding revision arthroplasty population.

<table>
<thead>
<tr>
<th>Revision Arthroplasty Demographics</th>
<th>Number of Patients</th>
<th>Demographics</th>
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<tbody>
<tr>
<td>Total number of revision surgeries</td>
<td>20</td>
<td>Primary TAA</td>
</tr>
<tr>
<td>One revision = 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two revisions = 2</td>
<td></td>
<td></td>
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<tr>
<td>Three revisions = 2</td>
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Note: 20 patients were included in the study.

Figure 1: Post-operative radiographs after revision total ankle arthroplasty. INBONE II prosthesis used.

Figure 2: Bar graph depicting a SF-36 score comparison between primary and revision TAA populations.

Figure 3: Bar graph depicting a FAAM score comparison between primary and revision TAA populations.

Results

A total of 31 patients who underwent revision TAA at our institution between 2011 and 2015 were identified. Surveys were sent to these patients. Seventeen patients (54%) returned a completed survey. Of the patients that returned a survey, 6 were male and 12 were female. Fifty-one men and women who underwent a primary TAA were identified and all were given a survey. Twenty-five patients (86%) returned a completed survey. There were 14 men and 11 women in the primary total arthroplasty cohort. We found that patients who underwent a primary TAA performed better in the SF-36 physical fitness, physical role functioning, and bodily pain categories. Additionally, primary TAA patients performed better in both the activities of daily living and sport categories of the foot and ankle ability measure. The functional survey results all suggested that the revision TAA group did not perform as well as the primary TAA.

Discussion

Our study assessed functional outcomes after revision total ankle arthroplasty in terms of general health measured by SF-36 and ankle function measured with self-reported FAAM score. These results were compared between two groups: patients who underwent primary TAA to those who underwent revision TAA. We found that patients who underwent a primary TAA performed better in the SF-36 physical fitness, physical role functioning, and bodily pain categories. Additionally, primary TAA patients performed better in both the activities of daily living and sport categories of the foot and ankle ability measure. The functional survey results all suggested that the revision TAA group did not perform as well as the primary group.

The SF-36 is a tool to assess function with score differences suggesting differences in functional performance. Lower scores suggest worse function when compared to a person who reports higher scores.

This data can be used to give the patients insight into how their function may differ when compared to recovery after the initial arthroplasty. Specifically, this data can be referenced when counseling patients regarding the post-operative physical function limitations they may expect.

References

