Evaluation Following Internal Hemipelvectomy with Pseudoarthrosis Using PROMIS

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Background
- Reconstruction following internal hemipelvectomy has been performed via arthrodesis and various arthroplasty reconstruction techniques.
- Ischiofemoral and iliofemoral pseudoarthrosis are straightforward reconstruction options that provide good functional outcomes while minimizing implant-associated risks and surgical times.
- Aim to report Patient-Reported Outcomes Measurement Information System (PROMIS) data following internal hemipelvectomy, and compare patients treated with pseudoarthrosis or flail limb against those treated with arthroplasty reconstruction.

Methods
- Single institution retrospective review from 2000-2020 of primary pelvic sarcoma treated with internal hemipelvectomy.
- Primary Outcome: PROMIS 43, version 2.1.
- Secondary outcomes: use of assist device, radiographic evaluation, repeat operations.
- PROMIS data reported compared to US General Reference Population (mean = 50) using two-tailed one-sample t-Test.
- Pseudoarthrosis cohort compared to arthroplasty cohort using two tailed t-Test.

Results

<table>
<thead>
<tr>
<th>PROMIS Category</th>
<th>Mean</th>
<th>t-Score</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>US (n=14)</td>
<td>Pseudo (n=14)</td>
<td>Implant (n=5)</td>
<td>Pseudo (n=14)</td>
</tr>
<tr>
<td><strong>Physical Function</strong></td>
<td>50</td>
<td>37.9</td>
<td>35.7</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td>50</td>
<td>49.4</td>
<td>57.9</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td>50</td>
<td>47.1</td>
<td>57.2</td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td>50</td>
<td>46.9</td>
<td>54.6</td>
</tr>
<tr>
<td><strong>Sleep Disturbance</strong></td>
<td>50</td>
<td>46.4</td>
<td>55.9</td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td>50</td>
<td>50.5</td>
<td>44.6</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>50</td>
<td>52.6</td>
<td>61.3</td>
</tr>
</tbody>
</table>

Secondary Outcomes
- Fusion
- Successful Fusion
- Femoral Migration
- Mobility
- Shoe Lift
- No Assist
- Single Cane
- Dual Cane
- Walker
- Wheelchair
- Subsequent Surgery

Pseudoarthrosis: 5/19 (26%)
Arthroplasty: 2/19 (10%)

Conclusions
- Pseudoarthrosis showed NO DIFFERENCE from US population when comparing: pain, anxiety, depression, fatigue, sleep disturbance, social participation, but had worse function than general US population.
- Arthroplasty showed worse function than general US population and showed MORE: pain, anxiety, fatigue, sleep disturbance than US population. Same social participation compared to US population.
- Study size too small to comment on statistical significance of secondary outcome measures.
- Most pseudoarthrosis patients required a shoe lift, and most patients required some assist device in both groups.
- More patients required repeat surgical intervention for infection or wound complications in Arthroplasty group.

References
- This study shows no functional difference between Pseudoarthrosis and Arthroplasty groups.
- Arthroplasty patients reported more pain, anxiety, depression, fatigue, sleep disturbance than the general population.
- Pseudoarthrosis patients did not demonstrate these worse PROMIS measure scores.