Preoperative PROMIS Scores Predict Postoperative Outcomes After Arthroscopic Bankart Repair


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Background

- PROMIS has shown validity and accuracy in characterizing patients who undergo surgery for shoulder instability
- PROMIS has shown ability to predict outcomes in other orthopedic conditions and procedures
  - Unknown for Bankart repair
- Advantages of PROMIS
  - All-electronic, computerized adaptive testing
  - Fast administration
  - Normalized T-score based on general population
Objective

- To describe PROMIS scores in patients who underwent Bankart repair for anterior instability
- To determine if preoperative PROMIS scores can predict postoperative achievement of Minimally Clinically Important Difference (MCID)
Materials and Methods

- Retrospective analysis from 2/2015-2/2017
- Inclusion criteria
  - primary diagnosis of anterior shoulder instability
  - documented dislocation/subluxation event
  - PROMIS scores both within 60 days prior to surgery and from 14-180 days after surgery
Materials and Methods

- Exclusion criteria
  - Prior shoulder instability surgery
  - Worker’s Compensation
  - Simultaneous subacromial decompression and acromioplasty at time of Bankart repair
Materials and Methods

- PROMIS physical function (PF), pain interference (PI) and depression (D) scores
- Accuracy analyses
  - To determine whether preoperative PROMIS scores from each domain could predict postoperative achievement of MCID in the same domain
- 95% cutoff scores were calculated
Results

- 71 patients included
- PROMIS scores
  - Preoperative – mean 32 days prior to surgery
  - Postoperative – mean 78 days after surgery
- Significant decrease in PI postoperatively ($p = 0.001$)
  - No significant changes in PF or D
Results

- Preoperative PF and D strong predictors of postoperative outcomes
  - AUCs of 0.84, 0.77, respectively
- Secondary analysis
  - After age, gender and surgeon added to regression model, all domains strongly predictive
  - AUCs of 0.89, 0.78, 0.80 for PF, PI and D
## Results

### Table 1. PROMIS Scores and 95% Cutoff Values

<table>
<thead>
<tr>
<th>PROMIS domain</th>
<th>Preoperative</th>
<th>Postoperative</th>
<th>Δ</th>
<th>95% MCID*</th>
<th>95% No MCID*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF</td>
<td>48.6 (9.2)</td>
<td>45.5 (8.2)</td>
<td>-3.2 (10.0)</td>
<td>&lt;= 37.6</td>
<td>&gt;= 61.0</td>
</tr>
<tr>
<td>PI</td>
<td>51.6 (8.8)</td>
<td>47.4 (8.9)</td>
<td>-4.2 (8.8)</td>
<td>&gt;= 62.1</td>
<td>&lt;= 40.7</td>
</tr>
<tr>
<td>D</td>
<td>43.4 (8.8)</td>
<td>40.4 (9.5)</td>
<td>-3.2 (9.1)</td>
<td>&gt;= 56.5</td>
<td>&lt;= 37.6</td>
</tr>
</tbody>
</table>

*95% MCID – cutoffs represent 95% chance of achieving MCID
95% No MCID – cutoffs represent 95% chance of failing to achieve MCID
Conclusions and Significance

- Although only PROMIS PI showed improvement postoperatively, **preoperative PROMIS PF and D scores are highly predictive of postoperative outcome**
- The **95% cutoffs** can be directly applied by surgeons to **stratify patients** based on their preoperative PROMIS scores and **identify patients at highest risk for poor outcomes**
References


Thank you