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Preoperative PROMIS Scores Predict Postoperative Improvements Following Rotator Cuff Repair

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Preoperative PROMIS scores predict postoperative improvements following rotator cuff repair

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INTRODUCTION

• National Institute of Health developed the Patient Reported Outcomes Measurement Information System (PROMIS)¹
  • Utilizes computer adaptive testing to efficiently measure outcomes across multiple domains²
• Preoperative outcome measures are predictive of post-operative improvement in hip and knee arthroplasty³
• PROMIS validated in assessing rotator cuff pathology⁴
**PURPOSE**

- Lack of evidence regarding preoperative outcome measurements as predictor of postoperative improvement
- Are we able to predict failure to achieve a minimal clinically important difference (MCID) following surgery?

**Hypothesis:** Patients with lower preoperative physical function, more pain and worse depression scores would have a higher likelihood of achieving MCID following rotator cuff repair.
METHODS

• PROMIS forms administered pre-operatively and six months post-operatively following arthroscopic rotator cuff repair
  • Upper Extremity (PROMIS-UE), Pain Interference (PROMIS-PI) and Depression (PROMIS-D)
• Distribution based MCID
• Calculated thresholds predictive of achieving or failing to achieve MCID
RESULTS

- 80 patients included in final analysis
- Patients meeting MCID:
  - PROMIS-UE: 76.25%
  - PROMIS-PI: 88.75%
  - PROMIS-D: 53.75%

<table>
<thead>
<tr>
<th></th>
<th>Pre-operative</th>
<th>Post-operative</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Extremity</td>
<td>29.88 ± 5.84</td>
<td>41.26 ± 10.14</td>
<td>+11.38</td>
</tr>
<tr>
<td>Pain</td>
<td>62.74 ± 4.51</td>
<td>50.34 ± 10.39</td>
<td>-12.40</td>
</tr>
<tr>
<td>Depression</td>
<td>47.25 ± 9.07</td>
<td>40.83 ± 10.63</td>
<td>-6.42</td>
</tr>
</tbody>
</table>

* Mean changes in each domain statistically significant (P<.01)
### Prognostic cutoffs for those likely to achieve MCID

<table>
<thead>
<tr>
<th></th>
<th>Clinical Cutoff</th>
<th>Pre-cutoff Probability</th>
<th>Post-Cutoff Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Extremity</td>
<td>&lt;24.95</td>
<td>76.25%</td>
<td>100%</td>
</tr>
<tr>
<td>Pain</td>
<td>&gt;65.65</td>
<td>88.75%</td>
<td>100%</td>
</tr>
<tr>
<td>Depression</td>
<td>&gt;56.45</td>
<td>53.75%</td>
<td>90.90%</td>
</tr>
</tbody>
</table>

### Prognostic cutoffs for those unlikely to achieve MCID

<table>
<thead>
<tr>
<th></th>
<th>Clinical Cutoff</th>
<th>Pre-cutoff Probability</th>
<th>Post-Cutoff Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Extremity</td>
<td>&gt;39.65</td>
<td>32.75%</td>
<td>37.50%</td>
</tr>
<tr>
<td>Pain</td>
<td>&lt;54.35</td>
<td>11.25%</td>
<td>75.00%</td>
</tr>
<tr>
<td>Depression</td>
<td>&lt;39.35</td>
<td>46.25%</td>
<td>56.78%</td>
</tr>
</tbody>
</table>
**DISCUSSION**

- Rotator cuff repair successful in improving physical function, pain and mental health
- Outcomes reporting adds to clinical decision making
CONCLUSIONS

- Patients undergoing rotator cuff repair showed significant improvements in all PROMIS domains exceeding MCID
- Applying cutoffs increased likelihood of achieving MCID
- PROMIS is an additional assessment tool for clinical decision making
REFERENCES


