

Digital Precision Management After Thoracoscopic Anatomic Sublobar Resection: A Prospective Randomized Study

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Background

- Symptoms remain dynamic after thoracoscopic anatomic sublobar resection.
- We assessed whether digital precision management improves symptom recovery through 6 months.

Methods

- Single-center prospective randomized study.
- 146 patients randomized 1:1 to digital precision management or usual care (73/73).
- Primary endpoint: MDASI-LC trajectories from baseline to 6 months.
- Secondary endpoints: rehabilitation adherence, platform engagement, and FEV1 recovery.

RESULTS

- 16-item symptom total: P=0.042
- 3-item lung cancer-specific total: P=0.003
- 13-item core total: P=0.084
- 6-item interference total: P=0.024

Figure 1. MDASI-LC 16-item symptom trajectory through 6 months

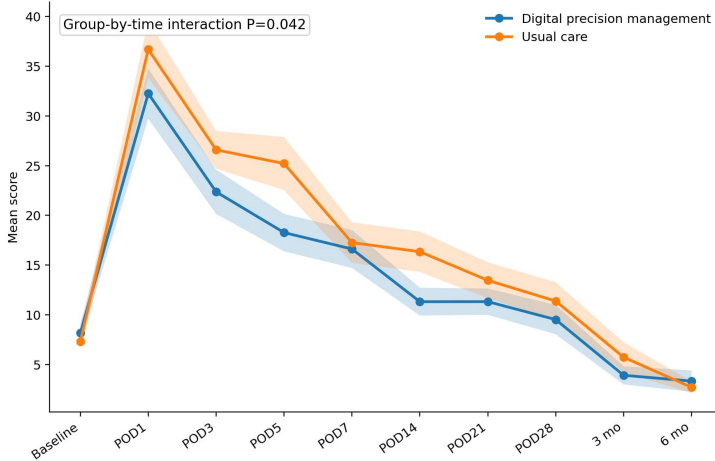


Figure 2. MDASI-LC 3-item lung cancer-specific trajectory through 6 months

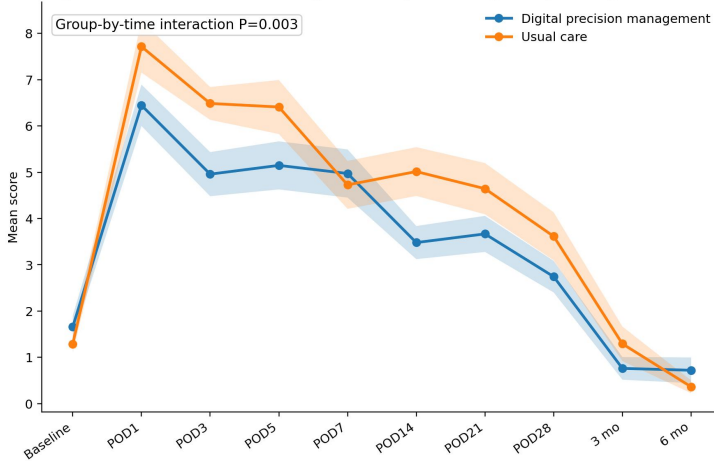


Figure 3. High rehabilitation adherence by 6 months

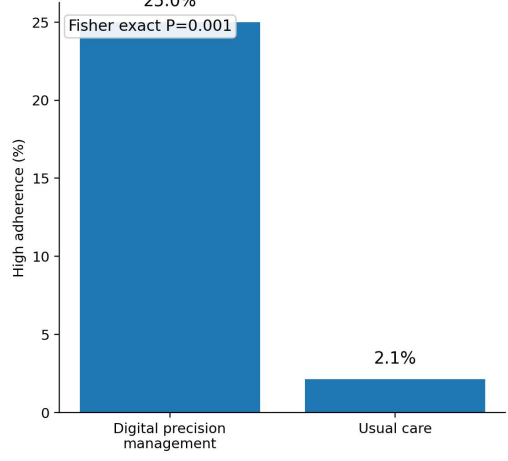


Figure 4. Platform logins through 6 months

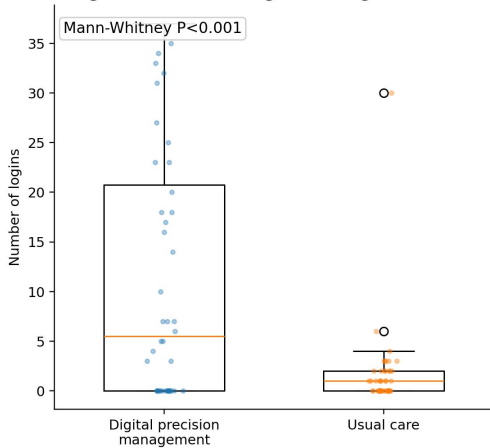
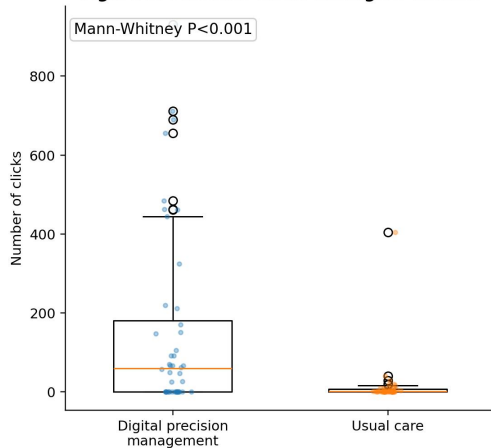


Figure 5. Platform clicks through 6 months



Interpretation

Digital precision management improved longitudinal symptom recovery, with the most consistent benefit in lung cancer-specific symptoms. High rehabilitation adherence was 25.0% vs 2.1% (P=0.001); platform logins and clicks were both higher (P<0.001). FEV1 recovery at 6 months was similar (91.42% vs 91.96%, P=0.850).

Key Findings

- Through 6 months, digital precision management was associated with better symptom-recovery trajectories, especially for the 16-item and lung cancer-specific MDASI-LC totals.
- Patient engagement and high rehabilitation adherence remained higher in the digital management arm.