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Improved Healing Rates of Meniscal Repair with Concomitant Posterior Cruciate Ligament Reconstruction Compared to Meniscal Repair Alone

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Faculty Disclosure Information

- Our disclosures are:

RJW:

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Introduction

- Concomitant anterior cruciate ligament reconstruction (ACLR) is known to improve the success rates of meniscal repair (MR) compared to MR alone.
- However, whether posterior cruciate ligament reconstruction (PCLR) also leads to improved success rates of MR is unknown.
- The purposes of this study was to investigate whether concomitant PCLR is associated with improved success rates of MR.
- We hypothesized that, like ACLR+MR, PCLR+MR would be associated with lower rates of revision meniscal surgery compared to MR alone.

Methods

- Retrospective cohort study of patients who underwent either PCLR+MR or MR alone from October 2015-2020 with minimum 2-year follow-up in a large national insurance database in the United States (PearlDiver Inc., Colorado, USA).
- Demographic data, surgical information, and comorbidities were collected and analyzed.
- Primary outcome: Revision meniscal procedures (meniscectomy, meniscal repair, and meniscal transplant) at 2-years.
- Time-to-event analyses (i.e., Kaplan-Meier for unadjusted analysis and Cox proportional hazard models for adjusted analysis) were used to assess the rate of revision meniscal procedures following MR alone, PLCR+MR, and ACLR+MR.
- Comparisons in demographics were made with Student t-tests or Chi-squared tests, as appropriate.

Results

- 46,226 patients (0.3% PCLR+MR, 51.5% MR alone, 48.2%, ACLR+MR) with an average follow-up of 4.2 years
- Compared to MR alone, patients undergoing PCLR+MR were younger (mean ± SD 27.0±13.3 vs. 38.5±17.8 years, p<0.001), more often male (61.8% vs. 48%, p<0.001), and had a similar comorbidity burden (Charlson Comorbidity Index 0.63±1.22 points vs. 0.75±1.26 points, p=0.26)
- The 2-year meniscal revision rate for **MR alone** was **8.3%** (95% confidence interval [CI]: 7.9%-8.6%) compared to **4.2%** (95% CI: 0.8%-7.4%) for **PCLR+MR**
- Controlling for age, sex, and comorbidities, **MR alone** remained associated with significantly **higher risk of revision** meniscal surgery compared to PCLR+MR
  - **Hazard ratio [HR] 2.68, 95% CI 1.20-5.97, p=0.016**
- For reference, the ACLR+MR meniscal revision rate was 6.4% (95% CI: 6.3%-7%; MR alone vs. ACLR+MR HR 1.62, 95% CI 1.51-1.74, p<0.001).
- Similar results were seen when including conversion to arthroplasty as an additional revision procedure.

Discussion

- Concomitant PCLR is associated with a significant reduction in meniscal revision rates following PCLR+MR compared to MR alone
- These are the first data to assess MR outcomes in the setting of concomitant isolated PCLR
- Although isolated PCLR (and by extension PCLR+MR) remains relatively rare, these data suggest that surgeons may have a similar or greater propensity towards performing MR vs. meniscectomy when performing PCLR as they do when performing ACLR
- These data also are consistent with the hypothesis that tunnel drilling may provide biological benefits that lead to greater meniscal healing when performing ACLR, and now, PCLR

References

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