Top 4 Knee Articles
JBJS

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UCSF Department of Orthopaedic Surgery
Arthroplasty for the Modern Surgeon
Case 1: The Athlete

• “I’m only running 5 miles a day. I want my knee replaced so I can run farther. I want the Athlete’s Knee Replacement”.

Questions:

• How does activity change after TKA?
• How does activity affect revision rate after TKA?
An Analysis of the Influence of Physical Activity Level on Total Knee Arthroplasty Expectations, Satisfaction, and Outcomes

Increased Revision in Active Patients at Five to Ten Years

Danielle Y. Ponzio, MD, Yu-Fen Chiu, MS, Anthony Salvatore, MS, Yuo-Yu Lee, MS, Stephen Lyman, PhD, and Russell E. Windsor, MD

Investigation performed at the Adult Reconstruction & Joint Replacement Division, Department of Orthopaedic Surgery, Hospital for Special Surgery, New York, NY

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Methods

• Design: Retrospective Cohort
• Comparison Groups:
  • Active vs Inactive TKA patients
• Endpoints
  • Activity level, KOOS, Complications
Results

• How does activity change after TKA?
Results

• How does activity affect revision rate after TKA?

<table>
<thead>
<tr>
<th>Reason for Revision</th>
<th>Active Group* (N = 1,008)</th>
<th>Inactive Group* (N = 1,008)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-cause</td>
<td>32 (3.2)</td>
<td>16 (1.6)</td>
<td>0.019†</td>
</tr>
<tr>
<td>Instability</td>
<td>9 (28.1)</td>
<td>5 (31.3)</td>
<td>0.999</td>
</tr>
<tr>
<td>Aseptic loosening</td>
<td>8 (25.0)</td>
<td>1 (6.3)</td>
<td>0.238</td>
</tr>
<tr>
<td>Stiffness</td>
<td>4 (12.5)</td>
<td>4 (25)</td>
<td>0.413</td>
</tr>
<tr>
<td>Infection</td>
<td>3 (9.4)</td>
<td>4 (25)</td>
<td>0.201</td>
</tr>
<tr>
<td>Osteolysis and wear</td>
<td>3 (9.4)</td>
<td>0 (0)</td>
<td>0.541</td>
</tr>
</tbody>
</table>
Case 2: Looks good, feels bad
part 1

• “My knee pain is horrible. The Dilaudid barely touches the pain. You must replace my knee.”
Questions:

• How do preoperative pain and OA severity affect results of TKA?
Preoperative Radiographic Osteoarthritis Severity Modifies the Effect of Preoperative Pain on Pain/Function After Total Knee Arthroplasty

Results at 1 and 2 Years Postoperatively

Ricky B. van de Water, BSc,* Claudia S. Leichtenberg, PhD candidate,* Rob G.H.H. Nelissen, MD, Herman M. Kroon, MD, PhD, Herman H. Kaptijn, MD, Ron Onstenk, MD, Suzan H.M. Verdegaal, MD, PhD, Thea P.M. Vliet Vlieland, MD, and Maaike G.J. Gademan, PhD, on behalf of the Longitudinal Leiden Orthopaedics Outcomes of Osteoarthritis Study (LOAS) Group

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Methods

• Design: Retrospective Cohort
• Predictor Variables:
  • OA severity: Kellgren Lawrence (KL) score
  • Preoperative Pain and Function (KOOS)
• Endpoints
  • Postoperative Pain and Function (KOOS)
Results

• How do preoperative pain and OA severity affect results of TKA?

  • Higher preop pain → Higher postop pain
  • Severe preop OA → Lower postop pain
  • Severe preop OA → Better postop function
Case 3: Looks good, feels bad
part 2

• “The pain is worse than before surgery. You must have done something wrong.”
Question:

• Can we modify preoperative patient factors that affect postoperative pain?
  • Pain catastrophizing?
  • Central sensitization?
Pain Coping Skills Training for Patients Who Catastrophize About Pain Prior to Knee Arthroplasty

A Multisite Randomized Clinical Trial

Daniel L. Riddle, PT, PhD, Francis J. Keefe, PhD, Dennis C. Ang, MD, James Slover, MD, Mark P. Jensen, PhD, Matthew J. Bair, MD, Kurt Kroenke, MD, Robert A. Perera, PhD, Shelby D. Reed, PhD, Daphne McKee, PhD, and Levent Dumenci, PhD

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Pain catastrophizing

• Maladaptive approach to coping with pain
  • Negative thoughts about pain
  • Rumination about pain
  • Helplessness in coping with pain

• Pain coping skills training beneficial in knee OA patients
Methods

• Design: randomized comparative effectiveness trial in pain catastrophizing TKA patients

• Treatment groups:
  • pain coping skills training
  • arthritis education
  • usual care

• Endpoint: WOMAC pain scale
Results: Does pain coping skill training decrease pain after TKA?
Duloxetine Reduces Pain and Improves Quality of Recovery Following Total Knee Arthroplasty in Centrally Sensitized Patients

A Prospective, Randomized Controlled Study

In Jun Koh, MD, PhD, Man Soo Kim, MD, Sueen Sohn, MD, Kwang Yun Song, MD, Nam Yong Choi, MD, PhD, and Yong In, MD, PhD

Investigation performed at Seoul St. Mary’s Hospital, Seoul, South Korea

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Central Sensitization

• Modulation of the central nervous system due to intense noxious stimuli leading to
  • allodynia
  • hyperalgesia
  • referred pain
  • persistent pain after removal of stimuli
Duloxetine: Indications

• Major Depression
• Generalized Anxiety
• Chronic Musculoskeletal Pain
• Fibromyalgia
• Diabetic Peripheral Neuropathic Pain
Methods

• Design: randomized controlled trial in centrally-sensitized TKA patients

• Treatment groups:
  • duloxetine
  • no duloxetine (controls)

• Endpoint: Pain scales
Results: Does duloxetine decrease pain after TKA?
Take home messages:

• Active patients did not increase activity after TKA and had a higher revision rate
• Beware of patients with severe pain and mild radiographic DJD
• Coping skills training did not improve postop pain in pain catastrophizing patients
• Duloxetine improved postop pain in centrally sensitized patients