Patient Characteristics and Factors Affecting Total Knee Replacement Decision-Making by Different Physician Types Treating Knee Osteoarthritis Patients

Angela V. Bedenbaugh, PharmD1, Gary Oderda, PharmD, MPH2, Vinson C. Lee, PharmD, MS3, Jennifer Moller, BA1, Diana Brixner, PhD, RPh2, Sarah Kennedy, PhD1, Timothy McAlindon, MD, MPH4, Jeyanesh R.S. Tambiah, MBChB, FRCS1

1Samumed, LLC, San Diego, CA, 2University of Utah Pharmacotherapy Outcomes Research Center, Salt Lake City, UT, 3The Kinetix Group, New York, NY, 4Tufts Medical Center, Boston, MA

Background

- Total knee replacement (TKR) is an effective knee osteoarthritis (OA) treatment and commonly performed orthopedic procedure that relieves pain and improves function and quality of life.
- In a real-world assessment, up to 34% of patients reported persistent pain following surgery, and comorbidities may limit surgical candidacy.
- The objective of this retrospective observational chart review was to identify the real-world percentage and distribution of TKR surgical candidates across treating specialties (orthopedic surgeons [OS], rheumatologists [RH], sports medicine [SM] physicians, and pain specialists [PS]) and gain insight into patient characteristics that influence TKR candidacy decisions.

Methods

- For this study, which was conducted between March and April 2019, board-certified physicians seeing ≥10 knee OA patients per week participated in an interview about their 2 most recent knee OA patients. In total, 854 patient charts were reviewed across all specialties. Interviews (structured questions and answers) assessed demographics, referral patterns, comorbidities, time to treatment, imaging use, TKR candidacy, and reasons for noncandidacy.
- Since no patient-identifying information was included, this project was exempt from IRB review and HIPAA consent. As this study was designed to assess effect modifications, a confidence level of 90% was used.
- Limitations included potential selection bias, confounding by risk factors, inability to show causation, small subgroup sample sizes, and missing data.
- Reasons for TKR noncandidacy were not mutually exclusive; thus, the predominant reason for noncandidacy was not identified.

Discussion and Conclusions

- Predominant TKR candidacy reasons were well-controlled symptoms/not needed (65%) and patient preference (29%), in addition to usual patient factors.
- The pattern of reasons for TKR noncandidacy was broadly similar across physician types; however, pain specialists had a higher percentage of patients with multitudes and worse overall health than other specialists. This may have also impacted patient preference.
- Although causation could not be identified, this analysis showed a substantial percentage of patients were not TKR candidates, highlighting the importance of patient factors in knee OA management and identifying a continued need for effective nonsurgical treatments.

Results

Table 1. Demographic and Clinical Characteristics Stratified by Diagnosing Physician

<table>
<thead>
<tr>
<th>Total Patients</th>
<th>Ortho Surgeons (OS)</th>
<th>Rheumatologists (RH)</th>
<th>Sports Medicine (SM)</th>
<th>Pain Specialists (PS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>63.3</td>
<td>64.5</td>
<td>64.7</td>
<td>66.7</td>
</tr>
<tr>
<td>Sex</td>
<td>55% (n=167)</td>
<td>59% (n=162)</td>
<td>54% (n=181)</td>
<td>60% (n=195)</td>
</tr>
<tr>
<td>BMI</td>
<td>30.6</td>
<td>31.0</td>
<td>30.8</td>
<td>31.6</td>
</tr>
<tr>
<td>Radiographic diagnosis</td>
<td>2.6</td>
<td>2.3</td>
<td>2.9</td>
<td>2.8</td>
</tr>
<tr>
<td>OA classification</td>
<td>67.9%</td>
<td>66.9%</td>
<td>67.9%</td>
<td>68.0%</td>
</tr>
<tr>
<td>Proximal OA</td>
<td>30.9%</td>
<td>33.9%</td>
<td>30.9%</td>
<td>32.9%</td>
</tr>
<tr>
<td>Distal OA</td>
<td>33.3%</td>
<td>33.3%</td>
<td>33.3%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Type of OA</td>
<td>66.7%</td>
<td>66.7%</td>
<td>66.7%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Chondral loss</td>
<td>21% (n=62)</td>
<td>17% (n=52)</td>
<td>25% (n=81)</td>
<td>16% (n=59)</td>
</tr>
<tr>
<td>Baseline OA</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
</tr>
<tr>
<td>OCD</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
<td>16% (n=46)</td>
</tr>
</tbody>
</table>
| Key: Statistically significant: P≤0.01. A versus orthopedic surgeons, B versus rheumatologists, C versus sports medicine physicians, D versus pain specialists

Figure 1. Patients’ Path to TKR

- % of Patients Who Had a TKR Among those at risk (n=854)
  - Within a year of diagnosis 20%
  - Year after diagnosis 31%

- % of Patients Who Are Candidates for TKR Among patients who have not had a TKR (n=78)
  - Within 12 months 58%
  - Within 12 months 61%

Figure 2. Reasons for TKR Noncandidacy

- Key: Statistically significant: P≤0.01. A versus orthopedic surgeons, B versus rheumatologists, C versus pain specialists

References:

AVB, SK, and JRST are employees and shareholders of Samumed, LLC. GO, VCL, DB, and TM are consultants of Samumed. LLC. JM was an employee of Samumed LLC at the time of the study.