

Impact of Inpatient Versus Outpatient Total Joint Arthroplasty on 30-Day Hospital Readmission Rates and Unplanned Episodes of Care

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KEYWORDS

• Total joint arthroplasty • Total knee arthroplasty • Total hip arthroplasty • Hospital readmission

KEY POINTS

- With the advent of rapid rehabilitation protocols and improved perioperative pain management, total joint arthroplasty (TJA) is rapidly moving toward shorter hospital length of stay (LOS) and outpatient TJA.
- The purpose of this study was to compare hospital LOS 30-day readmissions, all unplanned care episodes, and patient satisfaction between outpatient and inpatient TJA.
- Although not statistically significant, this study showed a higher rate of unplanned 30-day hospital readmissions following outpatient TJA (11.7%) than inpatient TJA (6.6%).
- A significantly higher proportion of patients who had an outpatient TJA reported that they received excellent care the day of their surgery.

INTRODUCTION

It is estimated that the number of total hip and knee arthroplasties (THA and TKA, respectively) will double within the next decade.¹ The economic burden associated with this projected increased demand may be astronomical. Health care entities must decrease costs as total joint arthroplasty (TJA) utilization increases. One potential way to curb hospital costs is by minimizing patients' hospital length of stay (LOS). Studies from the mid-1990s showed that LOS can be reduced (from 6.79 to 4.16 days) without affecting patient outcomes.² With recent

advances in pain management, rehabilitation, and protocol-driven treatment, outpatient TJA is becoming more popular.^{3,4}

With the passage of the Patient Protection and Affordable Care Act in 2010, there has been increased focus on health care savings. The federal government has a keen interest in unplanned readmissions of patients within 30 days from surgery. If a hospital's readmission rate exceeded the Center for Medicare and Medicaid Services (CMS) parameters, then hospitals were penalized 1% of total revenues in 2013. This number rose to 2% in 2014 and 3%

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in 2015. CMS parameters are based on national averages adjusted for various hospitalizations and procedures that occur in Inpatient Prospective Payment System (IPPS) hospitals. In 2013, the penalties were linked only to those readmissions associated with an underlying diagnosis of myocardial infarction, pneumonia, or congestive heart failure. However, CMS proposed to add chronic obstructive pulmonary disease and TJA, with a potential 3% penalty for 2015.

Several reports in the literature have shown that a successful outpatient TJA can be accomplished; however, many fail to consider readmission rates. As hospitals aim to decrease LOS concurrent with pending significant financial penalties for unplanned readmissions, one must closely assess the impact that hospital LOS might have on unplanned hospital readmissions. As the insurance industry looks toward a bundled payment arrangement with hospitals, unplanned care episodes that do not result in a hospital readmission, such as emergency room (ER) visits, also become important. The purpose of this study was to compare 30-day hospital readmission rates for patients undergoing outpatient and inpatient TJA and determine if LOS impacted hospital readmission rates and unplanned care episodes.

PATIENTS AND METHODS

In September 2010, 1 arthroplasty surgeon at the authors' institution developed a clinical pathway to perform outpatient primary TJA. In order to potentially qualify for outpatient arthroplasty, several preoperative criteria had to be met:

1. Healthy patients with no active cardiopulmonary conditions
2. No history of sleep apnea, deep venous thrombosis, or pulmonary embolus
3. Must live within 1 hour of the hospital where index procedure was performed
4. Must have good family support at home
5. Body mass index (BMI) less than 40

Between September 2010 and May 2011, the authors retrospectively reviewed the charts of patients who had undergone outpatient (same day discharge to home) TJA. The same inclusion criteria were used to retrospectively identify a separate cohort of patients who had undergone a TJA at the same hospital during the same time period by 2 other surgeons. These patients met the criteria for outpatient TJA but were admitted for an LOS of at least 2 days based on surgeon's judgment.

A review of all patients' electronic medical records was undertaken to determine unplanned hospital readmissions, urgent care or ER visits, or other complications during the 30-day post-operative period. Each patient was contacted via telephone to determine any additional readmissions or unplanned care visits related to their surgery. Patients were also polled regarding their satisfaction with their surgery and hospital stay.

Statistical analysis was performed using SAS Version 9.2 (SAS Institute Incorporated, Cary, North Carolina). Standard descriptive statistics including frequency, proportions, means, and variation are reported. The dependent variable for all differential analyses was readmission as a binary variable. A chi-square test was used to determine differences in proportions. An independent t-test was used to determine statistical differences in the mean patient age and BMI at the time of surgery between those who had a TJA as an inpatient procedure and those who had an outpatient TJA. An alpha level of significance of 0.05 was used to determine statistical significance for all tests.

Between September 2010 and May 2011, 232 patients underwent an outpatient TJA procedure. Of the 232 outpatient TJA patients, 42 (18%) patients required an overnight hospital stay and were excluded from further analyses. **Table 1** lists the reasons why these planned outpatient TJAs required overnight admission, as well as 30-day readmission details. Of the remaining 190 outpatient TJA patients, 53 (28%) were not available to complete the phone survey and were considered lost to follow-up. Therefore, 137 of the 190 (72%) outpatient TJA patients were included in the final analyses. During the same time period, 148 patients underwent inpatient TJA with a minimum 2-day hospital stay. Of the 148 patients, 106 patients (70.9%) completed the telephone survey. The study population consisted of 243 patients (137 outpatients and 106 inpatients). **Table 2** reports the demographics of both study groups.

Of the 243 patients included in the study, 166 underwent primary TKA, and 77 underwent primary THA. All inpatient and outpatient TKAs were performed using spinal or general anesthesia, a medial parapatellar approach, and included perioperative multimodal pain management. All inpatient and outpatient THAs were performed under spinal or general anesthesia at the discretion of the anesthesiologist. A standard posterior lateral approach and included perioperative multimodal pain management, which included nonsteroidal

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