

#5472 Trends in Comorbidities and Complications Among Patients Undergoing Elective Total Hip and Knee Arthroplasty

Lisa Reisinger¹, Crispiana Cozowicz³, Jashvant Poeran⁴, Haoyan Zhong¹, Alex Illescas¹, Jiabin Liu^{1,2}, Stavros Memtsoudis^{1,2}

¹ Department of Anesthesiology, Critical Care, and Pain Management, Hospital for Special Surgery, New York, NY, USA

² Department of Anesthesiology, Weill Cornell Medical College, New York, NY, USA

³ Paracelsus Medical University, Department of Anesthesiology, Perioperative Medicine and Intensive Care Medicine, Salzburg, Austria

⁴ Icahn School of Medicine at Mount Sinai, Department of Orthopedic Surgery / Institute for Healthcare Delivery Science, Department of Population Health Science and Policy, New York, NY, USA

49th Annual Regional
Anesthesiology and Acute
Pain Medicine Meeting

March 21-23, 2024 | San Diego, CA

ASRA PAIN
MEDICINE



INTRODUCTION

- **Total Joint Arthroplasty (TJA)** is commonly performed as the only definitive treatment in end-stage osteoarthritis aiming to facilitate significant enhancement in physical activities and quality of life.
- Earlier studies have shown that in the United States alone, more than one million TJAs were performed annually with projections of significant increase.
- As the population ages, the volume of total hip and knee arthroplasty (THA, TKA) procedures has been on the rise with currently over 1 million procedures annually and expected continued growth in demand.
- In addition to increased demand, these procedures are also increasingly performed in the outpatient setting for appropriate patients.
- This emphasizes the need for continued monitoring of trends in patient comorbidity burden and perioperative complications.

METHODS

- Using a large national database, we aimed to describe trends in patient and hospital related factors, patient comorbidities, and perioperative outcomes among THA/TKA recipients.
- **We included patients undergoing elective THA or TKA between 2016 and 2021 as recorded in the Premier Healthcare database.**
- Trends were reported and graphed for a variety of variables including **age, gender, race, and hospital-specific variables such as type of anesthesia, in-patient and out-patient procedures and hospital length of stay.**
- Complications were reported per 1000 inpatient days including mortality, acute myocardial infarction, arrhythmia, acute renal failure, delirium, other cerebral complications, hematoma formation, wound infection and sepsis. Cochran-Armitage trend tests or simple linear regression analyses measured significance of linear trends.

Median Age ↑

Outpatient
procedures ↑

LOS ↓

Comorbidity burden
↑

Perioperative
complications ↑

Figure 1. Trends in Comorbidities in TKA and THA Patients

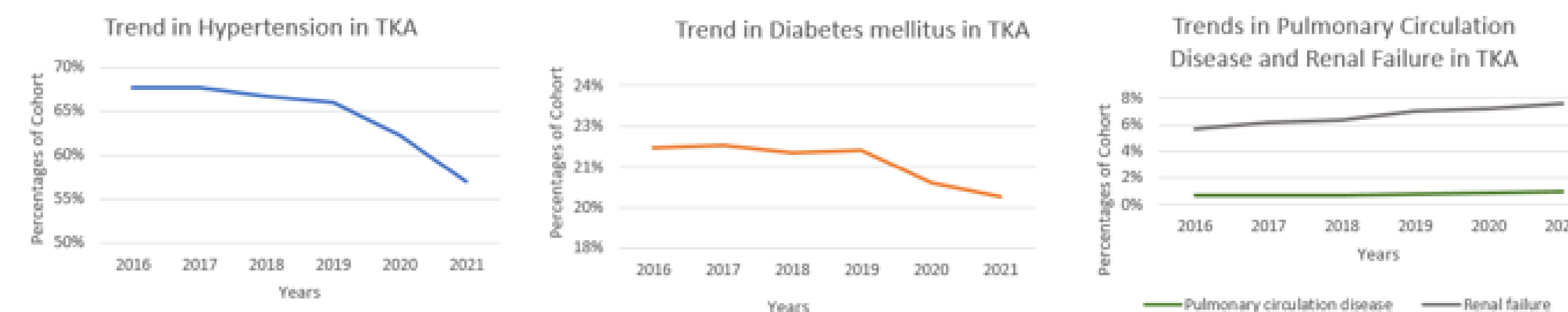
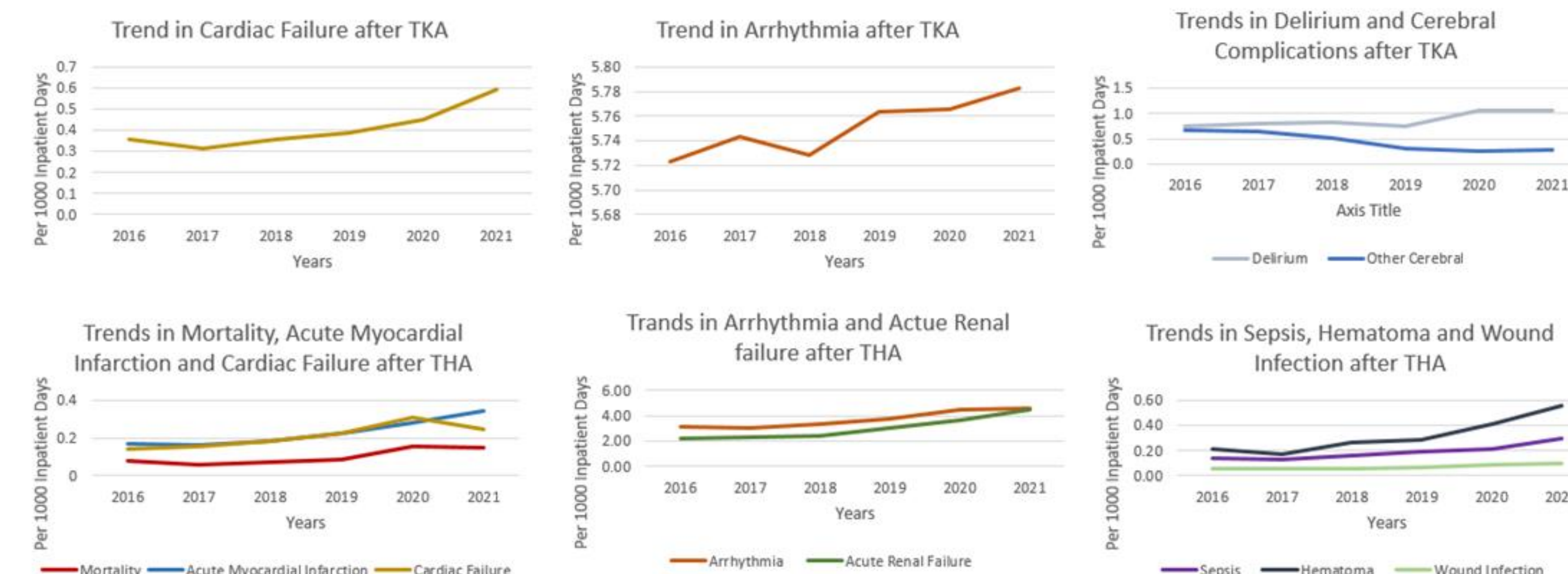


Figure 2. Trends in Complications in TKA and THA Patients

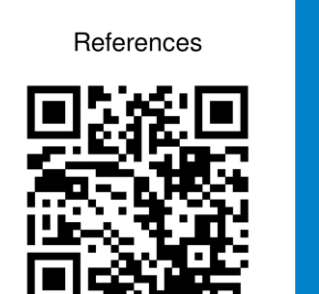


RESULTS

- Patients' **median age increased** (66.8 to 68.0 and 65.5 to 68.0 from 2016 to 2021 for THA and TKA, respectively), **demographic composition remained consistent** over the years.
- The most frequently used anesthesia technique was **general anesthesia** (52.7% in 2006 and 40.3% in 2021 in THA and 48.8% in 2006, 36.2% in 2021 in TKA), its usage has diminished over time.
- **Significant shift towards outpatient THA and TKA** procedures with 1 in 5 procedures performed in the outpatient setting.
- The **median length of hospital stay declined from 2 days in 2016 to 1 day in 2021** for both THA and TKA.
- **Overall increase in Elixhauser comorbidities** in the TKA cohort. The proportion of patients with three comorbidities rose from 10.3% in 2006 to 10.7% in 2021.
- **Diabetes mellitus and hypertension decreased in the TKA cohort**, while the THA group exhibited no significant changes in these comorbidities.
- **Significant increase in perioperative complications**, particularly in mortality, cardiac failures, arrhythmia, and delirium, as well as sepsis, wound infections, and hematoma formation.

DISCUSSION

- This study highlighted **divergent trends in THA and TKA** when compared to previous years and the findings from other research projects.
- Notably, we observed a **decrease in the prevalence of diabetes mellitus and hypertension** while there was an **upward trend in post-surgical complications**.
- This uptrend may be attributed to the increased age of the patient cohort or could be a consequence of altered healthcare resource allocation during the Covid-19 pandemic. Moreover, as expected, there was a **significant shift towards outpatient THA/TKA procedures**.
- Future studies should focus on if and how exactly these trends are related.



References

HSS