Simultaneous Bilateral TKAs Versus Staged Bilateral TKAs

Findings From the Hospital Morbidity Database

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Results

• Simultaneous bilateral TKA patients were younger (p<0.0001) than those with unilateral TKAs or staged bilateral TKAs (Figure 1).
• More than 97% of TKA patients had a most responsible diagnosis of arthritis, across the three comparison groups.
• Most TKA patients (more than 94%) did not have comorbid conditions coded at the time of surgery.
• Less than 1% of patients in each group died in hospital within 30 days after surgery, with no significant difference in the rates across the three groups (Table 1).

• Patients who underwent simultaneous bilateral TKAs were more likely to be transferred to a long-term care facility than those who underwent unilateral TKAs or staged bilateral TKAs (p<0.0001) (Figure 2).
• Simultaneous bilateral TKAs did not increase the risk of 30-day in-hospital mortality for patients. Patient gender, age, comorbid conditions and most responsible diagnosis were found to significantly contribute to the risk of 30-day in-hospital mortality (Table 2).

Background

Patients with knee osteoarthritis often present with symptoms that may warrant bilateral total knee arthroplasties (TKAs). There are potential benefits to performing simultaneous knee replacements, such as using a single anesthetic, reduced costs and decreased total recovery time. However, the safety of simultaneous bilateral TKAs has been questioned. This study examines whether patients who receive simultaneous bilateral TKAs have a higher risk of 30-day in-hospital mortality than patients who receive unilateral TKAs or staged bilateral TKAs. The study looks at procedures in Canadian facilities using administrative hospital data.

Data Source

Data comes from the Hospital Morbidity Database (HMDB), which is managed by CIHI and which provides data on acute care hospitalizations across Canada.

Methods

Study Population

Primary TKAs performed in Canada between April 1, 2006, and March 31, 2010, were identified using ICD-10-CA/CCI codes in the HMDB. Three comparison groups were created:

• Unilateral TKA patients, who underwent one TKA without a contralateral TKA within a year (n = 97,865);
• Staged bilateral TKA patients, who underwent one TKA followed by a contralateral TKA within a year (n = 13,638); and
• Simultaneous bilateral TKA patients, who underwent two TKAs on the same day (n = 4,187).

Analysis

Patient comorbidities at the time of surgery were defined using ICD-10-CA diagnosis codes and were categorized using Charlson’s comorbidity index. Chi-square tests and the Cox regression model were used.

Conclusion

In this analysis, the risk of 30-day in-hospital mortality was not statistically different across the three comparison groups, after controlling for patient gender, age, comorbid conditions and most responsible diagnosis. Patients who underwent simultaneous bilateral TKAs tended to need additional health care service support in the community after discharge.