

CORR Insights®: Preoperative Activities of Daily Living Dependency Is Associated With Higher 30-Day Readmission Risk for Older Adults After Total Joint Arthroplasty

Matthew L. Webb MD, MHS

Where Are We Now?

Total joint arthroplasty (TJA) is among the most common surgical procedures in the United States and the incidences of THA and TKA are projected to continue to increase through 2030 [9]. With the advent of bundled payments, there have been concerted efforts to lower costs associated with TJA, and consequently

many more patients are now being discharged to home after TJA rather than being discharged to an inpatient extended care facility. Hospital discharges to postoperative skilled nursing or in-patient rehabilitation are on average more costly than discharges to home [5]. The cost of discharge to an extended care facility ranges from USD 6000 to USD 16,000 greater than discharge to home [8].

Not only is discharge to an extended care facility after TJA costly, but it may expose patients to an increased risk of complications. Discharges to in-patient facilities are associated with increased 30-day postoperative patient morbidity and 30-day readmission [3]. Furthermore, studies have shown that discharge-to-home initiatives can be major cost-savers for hospitals. A study of more than 2300 patients who underwent TKA at a single institution between 2009 and 2014 showed that the rate of discharge to home can be increased from 9% to 53%, while the rate of discharge to in-patient rehabilitation can be decreased from 41% to 1%, without a substantial change in the 30-day rate of readmission, and at an average cost savings of USD 3245 per patient [1]. Not

surprisingly, the frequency of post-TJA home discharge have been increasing nationwide. A study of the National Surgical Quality Improvement Program database showed that between 2011 and 2016 the nationwide proportion of patients who underwent TJA discharged to home has increased following TKA and THA (from 71.2% to 83.6%, and from 65.6% to 80.7%, respectively) [6]. A recent meta-analysis [7] corroborated these sentiments and concluded that following TJA, it is safe to discharge patients to home whenever possible.

Patients over the age of 65 years who have Medicare and who are dependent on others for activities of daily living (ADL) are a vulnerable population. In the current study, Falvey and colleagues [2] used common Medicare identification numbers to link patient data from multiple Medicare databases so that ADL assessments could be linked with demographics and Medicare claims. They showed that patients on Medicare who were older than 65 years of age and dependent on others for ADLs are at nearly 50% increased odds of being readmitted within 30 days after being discharged to home relative to patients who did not have severe ADL dependence.

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M. L. Webb MD, MHS (✉), Hospital of the University of Pennsylvania, Department of Orthopaedic Surgery, 3737 Market Street, Philadelphia, PA 19104, USA, Email: matthew.webb@pennteam.upenn.edu

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M. L. Webb, Hospital of the University of Pennsylvania, Department of Orthopaedic Surgery, Philadelphia, PA, USA

Where Do We Need To Go?

There is concern regarding the unintended consequences of bundled

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payments in TJA [11], as discharge to home may not be appropriate for every patient after TJA. It is possible that selective discharge to an extended care facility could ultimately prove to be cost-effective, but many questions remain unanswered and it is currently unclear which patients may benefit.

In their study, Falvey and colleagues [2] only analyzed those patients who were discharged to home and they found that 17% of patients discharged to home had severe ADL dependence. However, it is unclear from this analysis what proportion of patients with severe ADL dependence were discharged to an extended care facility. Their study begs the question: Are patients with severe ADL dependence more likely to be readmitted after discharge to home or after discharge to an extended care facility? Further study is necessary to determine whether or not discharge to home after TJA is safe, reasonable, and cost-effective for elderly patients with severe ADL dependence.

As a screening and risk assessment tool, ADL dependence has promise. Clinicians can easily obtain this short patient-reported assessment, and the correlation between severe ADL dependence and readmission risk is plausible. Although Falvey and colleagues [2] have shown that severe ADL dependence is associated with readmission, it is currently unclear how severe ADL dependence impacts the risk of readmission. This could be determined through a detailed analysis of reasons for readmission.

Falvey and colleagues [2] also reported the reasons for readmission as specified by Diagnosis Related Group (DRG) codes, including revision surgery (DRG 867 or 868; 27/411 readmissions), cellulitis or infection (DRG codes 863 and 603; 26/411 readmissions), and cardiac arrhythmias

(DRG 310; 13/411 readmissions). However, it is unclear whether the revision surgery group and the infection group are exclusive. Does the revision surgery group include patients from the infection group who underwent modular component exchange revision for periprosthetic joint infection or does the revision surgery group include reasons for revision exclusive of infection, such as subsidence or periprosthetic fracture? If they are exclusive, then one could assume that many of the revisions were for periprosthetic fracture after falls, as it is plausible that patients with severe ADL dependence may be at particular risk for falls. If all of these revisions are related to acute peri-prosthetic infection, then this could be considered a relatively high rate of infection. Falls and fractures may be directly related to severe ADL dependence, but infection is more likely related to comorbid factors. These distinctions are important because they suggest substantially different strategies to reduce these readmissions. Should future interventions address pre-operative disability or associated comorbidities?

How Do We Get There?

Regarding whether patients with severe ADL dependence are more likely to be readmitted after discharge to home or after discharge to an extended care facility, researchers could investigate whether the reasons for readmission from home are different than the reasons for readmission from extended care. This information is available in national databases and registries, but it may be more worthwhile for healthcare organizations to query their local outcomes and readmission data. Improvement initiatives could then be proposed or implemented based on these findings, and

these initiatives could then be analyzed for cost-effectiveness. And if discharge to home is not cost-effective for patients with severe ADL dependence, then alternative means to lower costs after TJA could be implemented. One such strategy is the creation of local and regional directories of preferred high-performing extended care facilities with lower costs and fewer readmissions [10].

Ultimately, we must determine which patients are well suited for discharge to extended care facilities, so that we can guide our patients and appropriately influence the expectations of our patients and their families. Research supports the common clinical anecdote that patient expectation is the most important predictor of discharge destination after primary TJA [4]. Because patient counseling can be so influential in setting patient expectations, it is important that we develop reliable criteria—and perhaps severe ADL dependence is one—in order to delineate those patients who should be discharged to home from those who may be better served by extended care.

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