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Original Article

Length of Stay in Skilled Nursing Facilities Following Total Joint Arthroplasty

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ABSTRACT

Background: The most commonly used postacute care facility after total joint arthroplasty is a skilled nursing facility (SNF). However, little is known regarding the role of physical therapy achievements and insurance status on the decision to discharge from an SNF. In this study, we aim to compare functional outcomes and length of stay (LOS) at an SNF among patients with Medicare vs private health coverage.
Methods: We retrospectively collected physical therapy data for 114 patients who attended an SNF following acute hospitalization for total joint arthroplasty. Medicare beneficiaries were compared with patients covered by Managed Care (MC) policies (health maintenance organization [HMO] and preferred provider organization [PPO]) using several SNF discharge outcomes, including LOS, distance ambulated, and functional independence in gait, transfers, and bed mobility.
Results: LOS at the SNF was significantly longer for Medicare patients (Medicare: 24 ± 22 days, MC: 12 ± 7 days, $P = .007$). After adjusting for LOS and covariates, MC patients had significantly greater achievements in all functional outcomes measured. In a study subanalysis, Medicare patients were found to achieve similar functional outcomes by SNF day 14 as MC patients achieved by their day of discharge on approximately day 12. Yet, the Medicare group was not discharged until several days later.
Conclusion: Medicare status is associated with poor functional outcomes, long LOS, and slow progress in the SNF. Our results suggest that insurance reimbursement may be a primary factor in the decision to discharge, rather than the achievement of functional milestones.

Over the last 3 decades, there has been an exponential increase in the use of total joint arthroplasty (TJA) as a surgical tool in the treatment of end-stage primary osteoarthritis and other secondary osteoarthritic conditions [1]. Although TJA is successful in improving pain, quality of life, and physical activity, it requires substantial postoperative rehabilitation to regain and improve upon the patient's prior level of function [2,3]. Recent growth in the use of TJA has necessitated a simultaneous expansion of postacute care (PAC) modalities, which include home health care, outpatient therapy, and extended care facilities such as skilled nursing facilities (SNFs) and inpatient rehabilitation facilities (IRFs) [4]. For the 42% of Medicare-covered patients who went on to receive PAC after an acute hospitalization in 2013, the most common discharge destination was an SNF (SNF: 20%, home health: 17%, IRF: 4%, and long-term care facility: 1%) [5]. In a 2013 study of specifically post-TJA patients, 49% of Medicare beneficiaries attended an inpatient facility (SNF: 73%, IRF: 25%, and long-term care facility: 1.6%), and the rest went on to receive home health services [6]. Functional outcomes, therapeutic achievements, and length of stay (LOS) have therefore become central factors in the evaluation of the SNF's efficacy in post-TJA care.

Historically, care at SNFs was intended for patients with less need for physician involvement, nursing supervision, and physical therapy [7-10]. After modification of the IRF "75% rule" for Medicare beneficiaries in 2005, however, there was a significant rise in the utilization of the SNF as a rehabilitation setting after TJA [11]. The ensuing transformation in PAC has raised serious questions regarding the quality of rehabilitation in SNFs. This scrutiny is well founded, as Medicare fee-for-service expenditures for SNF care amounted to almost 29 billion dollars in 2014 [12]. PAC now accounts for approximately 15% of the Medicare budget, and expenditures will increase even further as 1.22 million individuals are projected to require the services of a PAC facility following TJA in 2030 [13,14].

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The price tag of post-hospital discharge care now represents up to 40% of the total payment for a single episode of TJA, the majority of which goes to PAC payments [6]. Reflecting their popularity, SNFs collect a 45% share of total post-discharge payments after TJA [6]. Therapeutic services rendered through PAC embody a substantial component of this cost burden. The annual cost for post-TJA physical therapy, specifically, is about $648 million; notably, one-quarter of the physical therapy modalities used have minimal documented benefit [15]. The unsustainable nature of Medicare's contemporary SNF benefit model prompted the Medicare Payment Advisory Commission this year to recommend that Congress freeze payments to SNFs for 2017 and 2018 while the payment system is modified [12].

A number of studies comparing discharge outcomes in various PAC settings have emphasized LOS as an end point of care [4,16-20]. LOS is often included as a variable in efficiency models used to estimate cost and payment effectiveness in PAC [10]. Yet, little is known regarding the actual factors influencing discharge to home from a PAC facility. A critical deficit in our knowledge of PAC is the correlation between insurance status, LOS at the SNF, and therapeutic achievements at discharge. Discharge from an SNF is presumably based on the adequacy of a patient's medical status and the progression of his or her physical rehabilitation. However, to our knowledge there have been no formal attempts to understand the connection between therapeutic achievements, LOS, and discharge disposition, nor have there been studies to measure the effect of insurance status in the decision to discharge.

The purpose of this study is to evaluate the relationship between LOS at the SNF and physical therapy outcomes at SNF discharge, as measured by distance ambulated and degree of functional independence. Differences between patients with Medicare and private health plans will be explored to determine if the adage, “payment drives practice,” applies to patients being discharged from an SNF. By understanding the relationship between insurance status, LOS, and functional outcomes, we hope to elucidate the underlying clinical factors and economical motives that play into discharge timing at SNFs. Based on Medicare's contemporary payment practices for SNF care, we hypothesize that Medicare coverage will be significantly associated with longer LOS and poorer physical therapy outcomes at discharge from the SNF when compared to patients with private, Managed Care (MC) health insurance.

Methods

Study Design

This study was approved by our institutional review board. We conducted a retrospective multisite design and included patients who were discharged to an SNF after having undergone primary or revision TJA at our institution between 2012 and 2014. After exclusion, 114 patients were enrolled in the study. These patients attended 37 different SNF sites representing 5 different counties in California.

Data Collection

We collected all medical and physical therapy (PT) records from each patient's respective SNF. If there was no response from the SNF, or if the requested file was incomplete, 2 additional attempts were made to collect the missing data before the patient was excluded from the study. To be considered complete, the SNF record needed to include the elements required for the study's primary outcomes. These consisted of the patient's admission and discharge date, insurance payer (Medicare vs MC [health maintenance organizations or preferred provider organizations]), PT achievements on initial evaluation, and PT achievements on discharge. The PT achievements recorded in this study were the total distance ambulated on level surface and the degree of functional independence with respect to bed mobility, transfers, and ambulation on level surface. Functional independence was rated by the SNF PT staff on a categorical scale from “total dependence” (most dependent) to “independent” (least dependent). In accordance with the Functional Independence Measure (FIM) motor scale, these ratings were converted to an integer score from “1” to “7,” with “7” indicating the greatest independence. FIM is a widely-used, reliable, standardized rehabilitation metric, the use of which has been endorsed by the Center for Medicare and Medicaid Services [10,21]. FIM is a trademark of the Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc (Amherst, NY).

Measures related to the study's secondary outcomes were also abstracted from the patients' SNF medical files. These included the total number of PT sessions and PT session minutes completed during the patient's stay, as well as the PT intensity (measured as the number of PT sessions per week and the number of PT minutes per day). In addition, we recorded the number of short-term and long-term goals achieved during the patient's stay. PT goals are assigned during evaluation at the SNF by the SNF's PT staff based on the patient's history and physical status at the time of admission. They are designed to incorporate the physical therapist's and patient's desired outcomes for PT [22]. As the patient makes progress, the goals are upgraded until the patient is discharged. For patient files that included weekly PT reports, we also recorded the PT achievements acquired each week. “Week 1” PT reports included achievements made during SNF days 1-7, “week 2” PT reports included achievements from SNF days 8-14, and so on.

Finally, we reviewed the hospital medical records of our study population. The following elements were obtained: age, gender, body mass index (BMI), race, marital status, living status, preoperative diagnosis, surgical procedure performed (total hip arthroplasty vs total knee arthroplasty, primary vs revision surgery), American Society of Anesthesiologists physical status rating, and estimated blood loss.

Outcomes

In this study, we sought to explore 2 primary outcomes in patients who attended SNFs following TJA: (1) SNF LOS and (2) PT achievements upon SNF discharge. In each outcome, patients were subdivided based on insurance payer into Medicare and MC subgroups. With these outcomes, we intended to answer 2 research questions. How does insurance status impact LOS at the SNF? And, how do functional outcomes at discharge vary between patients with different insurance payers?

There were a total of 4 secondary outcomes, each aimed at distinguishing PT achievements between Medicare and MC subgroups. To determine whether differences at baseline contributed to differences at discharge, we first compared Medicare and MC patients with respect to functional status at the preliminary SNF PT evaluation. Next, the number of short-term and long-term goals achieved by SNF discharge was correlated with LOS. This was done to determine if in fact more goals were achieved with a longer LOS. Third, in the event that there was a difference in LOS between Medicare and MC patients, the discharge functional outcomes of the group with the shorter LOS were compared with the weekly functional outcomes of the group with the longer LOS. The objective of this latter outcome was to ascertain the time point when the group with the longer LOS first achieved a similar