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Original Research

Cancer Rehabilitation: Do Functional Gains Relate to 60 Percent Rule Classification or to the Presence of Metastasis?

James A. Sliwa, DO, Samman Shahpar, MD, Mark E. Huang, MD, Gayle Spill, MD, Patrick Semik, BS

Abstract

Background: Literature supporting the benefits of inpatient rehabilitation for cancer patients is increasing. Many cancer patients, however, do not qualify for inclusion in the Centers for Medicare and Medicaid 60% rule and consequently may not receive services. The benefit of inpatient rehabilitation in this specific cancer group has not been investigated and is the focus of this study.
Objective: To investigate functional gains made during inpatient rehabilitation by patients impaired by cancer, and to compare the functional gains made during inpatient rehabilitation for patients impaired by cancer in relation to the presence or absence of metastatic disease and compliance or noncompliance with the Medicare 60% rule.
Setting: Freestanding university-affiliated rehabilitation hospital.
Participants: A total of 176 adult patients admitted for inpatient rehabilitation due to cancer.
Methods: Retrospective chart review of patients admitted for inpatient rehabilitation with deficits identified related to cancer.
Main Outcome Measures: Demographic data including cancer type, presence of metastasis, age, gender, marital status, ethnicity, length of stay (LOS), discharge destination, and transfer to acute care. Functional status including admission and discharge Functional Independence Measure Score (FIM), total, motor, and cognitive FIM gains, total, motor, and cognitive FIM efficiency for the study sample, for patients with and without a diagnosis compliant with the 60% rule and for patients with and without metastatic disease.
Results: In all, 176 cases met inclusion criteria. An admission coded diagnosis that was compliant with the 60% rule was present in 97 cases (55.1%). In 153 cases, the presence or absence of metastatic disease was known. Metastatic disease was present in 69 cases (45%). All groups (total sample, metastatic versus nonmetastatic, compliant versus noncompliant) made significant functional gains. Patients with a diagnosis noncompliant with the 60% rule had higher admission total FIM ($P = .001$), discharge total FIM ($P = .014$), admission motor FIM ($P = .005$), admission cognitive FIM ($P = .008$), and discharge cognitive FIM ($P < .001$) scores than those with a compliant diagnosis. Patients with metastatic disease had higher admission total FIM ($P = .026$) and admission ($P = .001$) and discharge ($P = .02$) cognitive FIM scores than patients with nonmetastatic disease. There were no significant differences between groups regarding total, motor, or cognitive FIM gains or total motor or cognitive FIM efficiencies. Differences in age, length of stay, and admission motor and discharge FIM scores between groups were related to cancer types and source of impairment.
Conclusion: Patients with functional limitations resulting from cancer or its treatment made significant functional gains in inpatient rehabilitation. There were no significant differences in functional gains made by those with or without metastatic disease or those compliant versus noncompliant with the 60% rule. The presence of metastatic disease or a diagnosis not compliant with the 60% rule does not preclude cancer patients from making significant functional gains.

Introduction

The American Cancer Society estimates that there are more than 13 million Americans living with a history of cancer, and that more than 1.6 million new cases will be diagnosed in 2015 [1]. The face of cancer care has changed dramatically over the past half century. Advancements in screening, detection, and treatment have resulted in significant improvements in survival. This improvement is evident from the all-cancer 5-year survival rate, which has increased from 35% to 66% in the last half century. Cancer is still, however a diagnosis

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that is associated with significant physical and emotional consequences. In 1978, Lehman et al published the results of a prospective descriptive study reporting the needs of cancer patients. In that study, 805 patients admitted for cancer care to 1 of 4 university-affiliated hospitals were screened for functional deficits. In all, 52% reported psychological problems, 35% generalized weakness, 30% difficulties with activities of daily living, 25% difficulty with ambulation, and 7% difficulties with transfers and communication [2]. More recently, Mousas et al assessed the rehabilitation needs of 55 patients admitted to the medical oncology floor of a Veterans Affairs hospital. Of the patients, 87% were identified as having rehabilitation needs, with mobility impairment in 58% of patients and deficits in activities of daily living in 22% of patients [3]. This high incidence of functional deficit, coupled with increasing survival, argues for the presence of a growing population with significant rehabilitation needs.

The literature supporting the benefits of rehabilitation for cancer patients is growing [4-8]. Patients with metastatic disease are frequently included in studies investigating inpatient rehabilitation and functional improvement. Comparisons of functional gains made between patients with and without metastatic disease are less often reported, but do confirm that the extent of disease does not affect the ability to make functional gains [4-6].

In addition, one significant barrier to providing rehabilitation to cancer patients is the need for rehabilitation facilities in the United States to maintain compliance with Medicare regulations. The Centers for Medicare and Medicaid Services requires that 60% of inpatient rehabilitation admissions fit into 1 of 13 diagnostic categories, commonly referred to as the 60% rule. Cancer is not, in and of itself, 1 of the 13 qualifying diagnoses. In many cases, cancer patients do not qualify for inclusion in the 60% rule. However, the rate that cancer patients do exhibit a qualifying diagnosis has not been reported. In turn, to our knowledge, the magnitude of functional gains made during rehabilitation for cancer patients with a diagnosis who do qualify for the 60% rule versus those who do not has not been assessed.

The primary purposes of this study were as follows: 1) to describe demographic and impairment characteristics of cancer patients admitted for inpatient rehabilitation; 2) to describe the extent to which cancer patients have impairments falling within the 60% rule; 3) to describe functional gains made by cancer patients; and 4) to compare functional gains made by patients with and without a diagnosis qualifying for inclusion in the 60% rule and patients with and without metastatic disease. The secondary study purposes were to describe primary cancer diagnoses that require inpatient rehabilitation in our patient mix, and to compare study cohort cancer site frequency to reported estimated rates of newly diagnosed cancers.

Methods

Participants and Procedures

All adult patients admitted for rehabilitation for functional deficits related to cancer or its treatment were included in the study. Patients with a history of cancer but with functional loss that was not directly cancer related, that is, cancer as a secondary diagnosis, or those with benign tumors such as meningiomas, were excluded. To determine the extent of inpatient rehabilitation services provided to cancer patients, we screened all adult patients admitted to our freestanding university-affiliated rehabilitation hospital from May 22, 2005, to March 10, 2007. We adopted this approach to ensure that all patients admitted with a rehabilitation impairment code of nontraumatic brain injury, nontraumatic spinal cord injury, fracture, or deconditioning that resulted from cancer were identified. This initial screen was performed within 24-48 hours of admission by an inpatient care manager who worked with cancer patients and was familiar with cancer diagnoses and terminology. If cancer was judged to be both the source of functional loss and the reason for admission, a data sheet was completed that included age, gender, marital status, ethnicity, and cancer characteristics including primary cancer type and presence of metastasis.

All identified patients records were then reviewed by the primary physician associated with the project. This second review ensured compliance with inclusion criteria and identification of admitting impairment code. By comparing admitting impairment codes to the 13 qualifying Medicare diagnoses, we were able to classify patients as qualifying or not qualifying for compliance with the 60% rule [9].

Functional data obtained for cancer patients included admission and discharge Functional Independence Measure (FIM) score, FIM gain, and FIM efficiency. Additional data obtained included length of stay (LOS), need for transfer back to acute care, and discharge destination.

The FIM is an 18-item scale used to assess functional independence during inpatient rehabilitation. Items are rated on a scale of 1 to 7 (total assist to independent) and are divided into 2 categories, motor, and cognition. Thirteen motor items assess upper body dressing, lower body dressing, eating, grooming, bathing, toileting, bowel and bladder management, bed transfers, toilet transfers, tub/shower transfers, stair negotiation, and locomotion. The 5 cognitive items assess comprehension, expression, social interaction, problem solving, and memory. Total FIM scores range from 18 to 126, with motor ranging from 13 to 91 and cognition from 5 to 35 [10].

Statistical Analysis

The demographic and clinical characteristics of the sample were reported descriptively. To examine the