



Point/Counterpoint

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Hospital-Based Rehabilitation for Recurrent Glioblastoma

CASE SCENARIO

You are asked to evaluate a previously healthy 45-year-old man for admission to your hospital-based inpatient rehabilitation unit. He was diagnosed 10 months ago with glioblastoma multiforme (GBM), which presented with gradually increasing right hemiparesis and word-finding difficulty. Initial imaging results indicated a large left temporoparietal mass with significant edema and a slight left to right shift. He was taken to surgery immediately for resection; pathology results confirmed GBM with minimal tumor at the margins. He underwent standard radiation therapy (RT; 60 Gy over 6 weeks) using focal, fractionated external beam RT with concomitant and adjuvant temozolomide, which resulted in a rather remarkable symptomatic improvement. At the end of 6 weeks of treatment, the hemiparesis was nearly resolved and the word-finding issues had completely resolved. He ambulated with a straight cane and was even able to return to work part time in his investment firm.

Ten days prior to your practice partner's recent evaluation, he was brought to the emergency department with sudden-onset tonic-clonic seizures. He was intubated, and intravenous phenytoin was administered. Magnetic resonance imaging showed substantial recurrence of the tumor with mild mass effect. The neurosurgery team decided against a debulking surgery and initiated oral steroids (dexamethasone, 6 mg every 6 hours). After extensive discussions with the radiation oncologist and based on the extent of the recurrence, his young age, his good functional status prior to admission, and the time from the last course of RT, he was given a second, short course of RT. After 3 days of RT, he experienced a second seizure, and levetiracetam, 1000 mg twice a day, was added to his medication regimen. Two days later a fever and shortness of breath developed, and a chest radiograph revealed that he had pneumonia, which was likely a result of aspiration in relation to the second seizure. A 10-day course of intravenous antibiotics was prescribed. Despite these complications, he improved in both level of alertness and in the movement of his right arm and leg.

At your consultation assessment, you found the patient to be a well-developed, middle-aged man with obvious right hemiparesis. He was slightly lethargic but arousable when engaged in conversation. Manual muscle testing revealed 3/5 strength in right lower extremity and 2/5 strength in the right upper extremity. His verbal expression was moderately poor, as he could offer 3-4 single-word answers but was unable to offer multiword answers to open-ended questions. His comprehension appeared to be intact for simple information at the bedside examination. A modified-texture diet and nectar-thick liquid had been initiated, apparently as a result of poor alertness during meals. Initially, he had barely met his caloric and hydration needs, but his intake had modestly improved during the preceding 48 hours. Functionally, he could stand but required the moderate assistance of 2 persons because of poor balance and motor control. He required at least moderate assistance in all activities of daily living. Current medications included dexamethasone, 6 mg by mouth every 6 hours, a proton pump inhibitor for gastric ulcer prophylaxis, phenytoin, 400 mg/d, and levetiracetam, 2000 mg/d for seizure treatment, an intravenous antibiotic, and subcutaneous heparin for deep venous thrombosis prophylaxis.

The patient had been divorced for about 2 years. His ex-wife cares for their 3 children (ages 5, 7, and 9 years), but none had any consistent contact with the patient before the GBM diagnosis. Since the diagnosis, the ex-wife has visited occasionally and recently had begrudgingly been reinstated as the patient's health care proxy. The patient was a successful financier with private insurance and no other social supports identified other than his ex-wife. He lives alone in a 2-story, single home with no steps in and one flight to the bedroom and full bathroom.

Your practice partner accepted this case to your inpatient rehabilitation unit just before you returned from vacation, and she then left for vacation. The medical director of the patient's insurance company has requested a peer-to-peer discussion with you to discuss why this patient is appropriate for hospital-based rehabilitation.

What argument would you make to the medical director of the insurance plan that inpatient rehabilitation is a more appropriate venue for this patient's care than a subacute rehabilitation unit or hospice care? If you brought him to your unit, what would be your goals?

Dr Vishwa Raj will argue that an inpatient rehabilitation facility (IRF) is the most appropriate setting for postacute care in this scenario. Dr Jack Fu will argue that an IRF is not the appropriate setting for this patient.

Vishwa S. Raj, MD, Responds

For this patient with recurrent GBM, acute inpatient rehabilitation care would be the appropriate setting to address medical and functional needs. According to the National Cancer Institute, "Survivorship focuses on the health and life of a person with cancer treatment until the end of life. It covers the physical, psychosocial, and economic issues of cancer, beyond the diagnosis and treatment phases. Survivorship includes issues related to the ability to get health care and follow-up treatment, late effects of treatment, second cancers, and quality of life. Family members, friends, and caregivers are also considered part of the survivorship experience" [1]. The Centers for Medicare and Medicaid Services (CMS) have specific requirements that focus on appropriateness of admission to IRFs. These considerations include medical necessity at the time of admission; a requirement for intensive rehabilitation services, specifically as it relates to the ability to participate in 3 hours of therapy per day for 5 days a week; the need for multiple therapy disciplines, of which one should be either physical or occupational therapy; and an interdisciplinary team approach, which includes therapy services, rehabilitation nursing, and social work [2]. In this case scenario, the patient is a cancer survivor currently experiencing deficits as a result of recurrent GBM, and he has significant medical complexity related to the tumor diagnosis and sequelae from medical intervention (including treatment for seizures, management of high-dose steroids, monitoring for potential complications, such as gastric ulceration and hyperglycemia, and antibiotic dosing for aspiration pneumonia). He also is experiencing functional deficits that have shown improvement with medical intervention (including right-sided hemiparesis, aphasia, and dysphagia). At the most fundamental levels, the requirements for medical necessity and functional need are being met.

With improvements in acute oncologic management, cancer is slowly transitioning from a terminal illness to a chronic medical condition. However, barriers still exist when attempting to integrate oncology and rehabilitation care in the inpatient setting. For an IRF participating in the Medicare Prospective Payment System, each facility is required to comply with the 60% rule, which mandates that 60% of admissions on an annual basis fall within 1 of

13 specific medical conditions [3]. Interestingly, when reviewing these diagnoses, cancer is not noted. Often cancer diagnoses are not considered for admission because of fear of noncompliance with the 60% rule. However, it is important to understand that some cancer diagnoses actually do meet compliance regulations (such as recurrent GBM categorized as a brain injury), and opportunities exist within the 40% noncompliant framework to accommodate other cancer survivors.

Perhaps a more significant concern regarding the admission of patients with cancer is the potential for functional improvement. Several studies conducted in the United States have shown that inpatient rehabilitation care does lead to improved outcomes for survivors living with brain tumors. Early studies compared inpatient outcomes for persons with brain tumors and more traditional rehabilitation diagnoses, such as stroke and traumatic brain injury (TBI). When comparing stroke functional outcomes as measured by the Functional Independence Measure (FIM), patients with brain tumors were found to have similar scores for total admission FIM, total discharge FIM, change in total FIM, and FIM efficiency [4]. Similarly, when compared with TBI, survivors with brain tumors reported no significant differences in total admission FIM, total discharge FIM, and FIM efficiency [5], and daily functional gains were similar between both groups when matched for age, gender, and admission functional status [6]. Although the grade of a tumor may be a concern, it has been shown that persons with high-grade brain tumors can have positive outcomes, and those with a high-grade astrocytoma who participated in inpatient rehabilitation programs had higher total FIM gains compared with patients who had low-grade astrocytomas [7]. It has even been noted that patients receiving concurrent RT during inpatient rehabilitation have made greater functional improvements per day than those not receiving RT [8]. Hence, persons living with brain tumors do have the potential for functional improvement after participation in comprehensive inpatient rehabilitation programs.

In this case scenario, the patient is experiencing a recurrence rather than the initial diagnosis of GBM. Most of the evidence supports outcomes after a new diagnosis of a brain tumor. It stands to reason, however, that

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