What it Means to Have Brain Metastases: The Health Implications of Newly Diagnosed Brain Metastasis in Patients with Non-small Cell Lung Cancer

Alexandra Sansosti; S. Peter Wu MD; Akram Habibi BSc; Marc Kryger BS; Cameron Bearederault BA; Daniel Gorovets; L. Dade Lunsford MD; Joshua Silverman MD; Douglas Kondziolka MD MSc FRCS(C) FACS

Introduction

Most brain metastasis research has focused on the determination of tumor management approaches with survival and neurological outcomes. What does it truly mean to have this diagnosis? We sought to quantify the healthcare utilization, cost, and symptom burden of newly diagnosed brain metastases (BM) in patients with non-small cell lung cancer (NSCLC) over the course of their life following diagnosis.

Methods

Consecutive patients with new BM from NSCLC diagnosed from 2013 through 2015 at a single institution were studied. All patients had >30 days follow-up. For each patient, tumor pathology, local and systemic treatment, ED visits, inpatient admission, imaging studies, and all ICD-9 coded symptoms were collected. Healthcare utilization and cost was normalized by follow-up time per patient. Cumulative hazard is estimated by the method of Kaplan-Meier. ?2 and t-test (a = 0.05) were used to compare patient characteristics.

Results

A total of 193 patients were identified. 43(22%) had EGFR mutation, 11(6%) had ALK/ROS1, 28(15%) had RAS/RET, 49(25%) had no known molecular marker, and the remaining 62(32%) had no molecular tests available to review. 65% of patients underwent treatment with stereotactic radiosurgery (SRS) alone, 16% with whole brain radiotherapy (WBRT), 7% WBRT+SRS, and the 12% underwent combination of radiation and surgical resection. Patients had an average of three radiology studies (MR/CT/PET/CT) per month; and one ED visit and one inpatient stay every four months. The length of stay of each inpatient visit was on average 1 week. 75% of patients were discharged home and 7% to hospice. The average monthly cost of inpatient care ($5,053) and medicines ($7,406) were comparable among molecular subtypes. At 12 months, the most common comorbid symptoms were fatigue 40% (95% CI: 31–48), nausea 25% (18-31), pneumonia 23% (15-29), major depressive disorder 23% (6-29), and lower extremity DVT 22%(15–29).

Conclusions

Brain metastases patients use significant healthcare resources. The use of imaging, drug therapy, emergency room visits and hospitalizations can be quantified and predicted. Understanding the total effects of cancer on the patient are important for optimal care and management planning.

Learning Objectives

Participants will be able to describe the elements and expectations of cancer care in patients with brain metastases.