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Three-Year Experience of a Multidisciplinary Central Nervous System Clinic Model for Radiation Oncology and Neurosurgery (RADIANS) in a Community Hospital Setting

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Abstract

Introduction

As academic centers partner and establish healthcare systems with community hospitals, delivery of subspecialty, multidisciplinary care in community hospital settings remains a challenge. Improving outcomes for central nervous system (CNS) disease is related to integrated care between neurosurgery (NS) and radiation oncology (RadOnc) specialties. Our multidisciplinary community hospital-based clinic, RADIANS, previously reported high patient approval for simultaneous evaluation with NS and RadOnc physicians. Three-year experience is now reported.

Methods

Prospectively collected clinical and demographic patient data over three years was conducted. Patient surveys were administered. Descriptive statistics reported as mean and percentages for patient characteristics, diagnosis, treatment and outcomes.

Results

Between August 2016 and August 2019, 101 patients were evaluated. Mean age was 61.2 years and mean distanced traveled was 54.9 miles (Range = 0.3 - 340). Patient Satisfaction Score was 4.79 (0-5 Scale, 5-very satisfied). Most common referral source was medical oncologists. Seventy-two patients had malignant CNS disease (brain mets 28; spine mets 27; both 6; primary brain 9; primary spine 2), 29 had benign CNS disease. Post-evaluation treatment: radiation therapy (RT) only (n=29), neurosurgery (NS) only (n=16), both RT and NS (n=22), and no RT/NS intervention (n=34). Fractionated stereotactic radiosurgery was most common RT delivered; craniotomy with tumor resection was most common NS

performed. Treatment outcomes: local control=61/67 (91%); radiation necrosis or radiation-induced myelitis=2/51 (3.9%).

Conclusions

The RADIANS multidisciplinary community hospital-based CNS clinic model is first of its kind to be reported, continuing strong patient approval at extended follow-up. Data indicates the model serves as a regional referral center. Patients with varying degrees of co-morbidities, systemic disease status, and oncologic staging can be treated with evidence-based treatment modalities for complex CNS disease, yielding high rates of local control and low rates of grade 3 or 4 radiation-induced toxicity, while having access to on-going clinical trials.