

Does the Volume have an Impact to Implement A Stereotactic Program at Community Cancer Centers in the Era of Immunotherapy and Stereotactic Ablative Radiation Therapy (ISABR)?

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Abstract

Objectives: Immunotherapy and stereotactic ablative radiation therapy (ISABR) is emerging as curative treatment option for locally advanced and stage IV malignancies but published data is limited to prove the benefit of these newer immunotherapy medications in decreasing or preventing brain metastases. Local treatment with radiation therapy, either stereotactic radiosurgery (SRS) or stereotactic radiation therapy (SRT) is still the main treatment modality for the management of limited number of brain metastases. Small volume centers have limitations to implement SRS program with the costs involved, limited trained experts in SRS/SRT/SABR and lack of awareness among community physicians about the referral to SRS/SRT over surgery.

Methods: This is a retrospective review of patient charts of brain metastases treated with SRS at a community center in Iowa which provides radiation therapy services for 8- 10 counties. Twenty-two patients were treated between years 2014-2018. The quality metrics measured included RT wait times, planning time, apart from demographic data, SRS dose, overall survival. Statistical analysis was done using SAS software.

Results: All patients were treated on the Trubeam Linac system using Rapid arc technology (Varian) on Eclipse planning system. Lung cancer was the most common primary with brain metastases, seen in 14 patients (64%) and thirteen patients were male (59%). The mean dose of SRS was 21 Gy (range: 10-24). Inoperable location with frontal lesions were seen in majority, 14 patients (64%) and parietal location in 5 patients (23%). Increase in use of SRS was seen 2016 onwards, 14 patients were treated 2016-18. Seven patients (32%) were on immunotherapy. Median RT wait time (date of consult seen to the date of treatment) was 22 days (range 6-55 days) and the median planning time (date from MRI simulation to the date of treatment) was 9 days (range 3-33 days). Two patients were treated with SRS to multiple lesions with a longer calculated RT wait times of 43, 55 days. Median overall survival was 9 months (range: 23 days-2 years). None of the patients had local failures or radiation necrosis.

Conclusions: Patients presenting with brain metastases is expected to increase over next decade due to improvement in survival rates from newer immunotherapy medications. SRS/SRT can be implemented safely in small volume centers with equivalent clinical outcomes

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Abstract

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compared with high-volume centers by a trained team of radiation oncologists in ISABR.