

A Retrospective Study of Lung Stereotactic Body Radiation Therapy (SBRT) patients within a Community Hospital Environment

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Abstract

Objectives: Stereotactic Body Radiation Therapy (SBRT) is becoming the most popular recommendation for inoperable early stage lung cancer. This retrospective study will provide insight into our program's results for lung SBRT.

Methods: At the participating clinic, a total of 17 patients were treated using SBRT for lung tumors from 2012-2015. Out of all of the patients, 3 were lost to follow-up; therefore this study will only focus on the 14 patients with pertinent follow-up. All patients were diagnosed at a multidisciplinary clinic. Prior to each SBRT treatment, the patients were simulated using a 4D CT simulation to localize the tumor for planning. Once the plan was completed, a 4D cone beam was completed on the treatment machine to localize the tumor and track any motion of the tumor itself occurring in the lung. Once treatment was completed, patients returned for follow-up visits 1 month, 3 months, and 6 months after treatment for evaluation. The SBRT patients were evaluated for acute or chronic side effects, local, regional or systemic control, and monitored to see if a new primary site had developed.

Results: From the 14 patients, 57% were female and 43% were male and the mean patient age was 77. For diagnosis of their disease, 57% of patients had a CT guided biopsy and 43% were diagnosed clinically. The size of the tumors ranged from 5mm-4.9cm. For this study, 86% of the patients were diagnosed with a primary lung tumor while 14% were diagnosed with Oligometastasis. There were three different fractionation schemes used for the various SBRT treatments. These schemes included 48Gy/4FX (73%), 54Gy/3FX (20%), and 60Gy/5FX (7%). The mean follow-up time of this study was 1.77 years with the range of the follow-up being 0.5 years-4 years. Of the 14 patients, 86% reported no side effect, 14% reported acute side effects. The reported acute side effects included rib pain and erythema. After completion of a series of follow-up scans, the patients were evaluated for local, regional and systemic control. 100% of all patients had local control, 86% had regional control, and 93% had systemic control. The patient with additional metastatic spine disease was treated with Stereotactic Radiosurgery (SRS) to the affected area and had no disease progression since the spine SRS. Finally, 87% of the patients had no sign of recurrence and 79% had no new primary in the time period of this study. The 21% of patients that developed a new primary site consisted of lung, breast and larynx.

Conclusions: Ultimately, our retrospective study of SBRT patients showed a successful finding

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Abstract

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for our community hospital environment. We observed 100% local control of our SBRT lung patients with no significant toxicity. Currently, 50% of those treated patients are living and doing well. These SBRT lung results from our program match other results that were previously reported. We will continue to report similar information pertaining to SBRT patients as they complete and are seen for follow-up. As part of the ongoing study, we are evaluating the dosimetry of each patient's treatment plan for values of a heterogeneity index (HI) and conformity index (CI). This information will help provide more insight and help our clinic to improve patient care in the future.