

## Stereotactic Body Radiation Therapy for Non-Resectable Pancreatic Cancer: Clinical Outcomes from the RSSearch® Registry

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## Abstract

**Objectives:** Pancreatic cancer (PCa), though often metastatic at presentation, can lead to significant morbidity and mortality secondary to local progression. As such, treatments aimed at providing both adequate local control (LC) for palliation while ideally improving overall survival (OS) are necessary. The purpose of this preliminary study was to report on outcomes following stereotactic body radiation therapy (SBRT) with regards to progression-free survival (PFS) and OS in PCa patients.

**Methods:** The RSSearch® Patient Registry was screened for PCa patients treated with SBRT from April 2007 to January 2016. Study inclusion criteria included information regarding treatment planning, GTV, LC, and minimal survival data. The relationship between PFS, OS, and potential prognostic factors were evaluated using the Kaplan-Meier method and continuous log rank analysis, and the correlation between treatment planning and toxicity incidence was examined by logistic regression.

**Results:** Sixty patients treated with SBRT (9 with 1 fraction, 23 with 3 fractions, 4 with 4 fractions, and 24 with 5 fractions) met inclusion criteria. Median patient age was 78 years (range: 39 -95). Twenty-three patients (38.33%) received concurrent chemotherapy. Median GTV was 24.9cc (range: 2.214 – 172.36). Following SBRT, median PFS was 6.07 months (range: 2.33 months – 34.4 months) and median OS was 8.55 months (range: 2.66 – 78.53 months). Single fraction SBRT trended towards worse outcomes with regards to median PFS (5.13 months vs. 6.76 months;  $p = 0.1370$ ) with no significant difference in median OS (10.3 months vs. 7.17 months;  $p = 0.8896$ ). Patients with GTVs < 25 cc did not have significantly better PFS (8.82 months vs. 6.78 months;  $p = 0.40$ ). Higher T stage was correlated with poorer PFS (T1 - 10.1 months vs. T4 - 3.07 months;  $p = 0.0157$ ) but no significant difference in OS (12.66 months for T1 vs. 8.70 months for T4;  $p = 0.4673$ ). Concurrent chemotherapy was not found to result in significantly improved PFS (5.12 months vs. 6.35 months;  $p = 0.52$ ) or OS (8.67 months vs. 7.07 months;  $p = 0.6010$ ). Seven patients (12%) reported acute Grade 1 or 2 toxicities such as fatigue, anorexia, diarrhea, and nausea. One fraction SBRT was significantly associated with increased risk of toxicity incidence (5/9 patients vs. 2/51 patients;  $p = 0.001$ ).

**Conclusions:** SBRT was well-tolerated by PCa patients with multiple fraction SBRT trending

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#### Abstract

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towards superior PFS and less toxicity as compared to single fraction SBRT. Further studies aim at validating these findings in a larger cohort as further accrual and follow-up is completed as well as examining the possible benefits of dose escalation with regards to PFS and OS.