

Stereotactic Body Radiotherapy compared to Conventionally Fractionated Radiotherapy for Locally Advanced or Oligometastatic Pancreatic Cancer



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BACKGROUND

- Pancreatic cancer, particularly in its locally advanced and oligometastatic forms, poses a therapeutic challenge.
- Radiotherapy remains an important treatment in an attempt to gain local control. Data is limited to support specific RT recommendations for locally advanced disease.
- There is no consensus on whether stereotactic body radiotherapy (SBRT) is appropriate as compared to conventionally fractionated radiotherapy (CFRT).

METHODS

- We conducted a retrospective analysis for 49 patients with advanced pancreatic cancer, that were treated between 2010 and 2023.
- The patients examined received definitive radiotherapy with SBRT 30-50 Gy in 3-5 fractions or CFRT 50-60 Gy in 25-30 fractions.
- We excluded all patients with resectable disease who underwent surgery.
- Clinicopathological data, treatment regimens and radiation parameters were collected and analyzed. Outcomes include Local Recurrence Free Survival (LRFS), overall survival (OS), Progression Free Survival (PFS) and treatment-related toxicity (graded by CTCAE version 5.0)

Results

Table 1: Patient and Treatment Characteristics

		SBRT	CFRT	P value
Sex	Male	16 (59.3%)	16 (72.7%)	0.325
	Female	11 (40.7%)	6 (27.3%)	
Location	Head	21 (77.8%)	16 (72.7%)	0.683
	Body\Tail	6 (22.2%)	6 (27.3%)	
Group Stage at Diagnosis	Locally Advanced (Stage III)	22 (81.5%)	19 (86.4%)	0.543
	Oligometastatic (Stage IV)	5 (18.5%)	3 (13.6%)	
Nodes Treated Electively	Yes	13 (48.1%)	15 (68.2%)	0.159
	No	14 (51.9%)	7 (31.8%)	
Chemotherapy	Yes	23 (85.2%)	21 (95.5%)	0.362
	No	4 (14.8%)	1 (4.5%)	
Biological Treatment	Yes	3 (11.1%)	2 (9.1%)	1.0
	No	24 (88.9%)	20 (90.9%)	

Table 2: Predictors for local recurrence

Predictor	P value
Radiotherapy Treatment (SBRT vs CFRT)	0.838
Sex	1.0
Location at Diagnosis	0.710
Group Stage at Diagnosis	1.0
Nodes Treated	0.390
Chemotherapy	0.602
Biological Treatment	1.0
Age	0.723
GTV Size	0.256
Minimal Biologically Effective Dose to GTV	0.965
Maximal Biologically Effective Dose to GTV	0.802

Key findings:

- There was no significant difference in LRFS or OS between the two cohorts.
- We were unable to determine any predicting factors for local recurrence.
- Median survival for SBRT cohort was 23.1 months (CI 18.7-27.4m) and 15.5 months (CI 7.2-23.2m) in the CFRT cohort.
- No differences in toxicity were noted between the two cohorts. There was no grade 4-5 toxicity in any cohort.

Conclusions

- In this retrospective study we found no difference in terms of oncologic outcomes or toxicity in patients receiving SBRT in comparison to CFRT for locally advanced and select oligometastatic pancreatic cancers.
- Considering the efficiency of SBRT, delivered in fewer treatments and deemed more convenient for patients, our findings suggest that SBRT may emerge as the preferred strategy in select cases.
- Further improvement in RT approaches is warranted in order to attempt to improve local control and outcomes in these challenging cases.

