Hypofractionated Radiation Therapy for Unresectable or Metastatic Sarcoma Lesions Provides Durable Tumor Control and Effective Palliation

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Response rates for unresectable and/or metastatic sarcomas are generally poor with most patients progressing on systemic therapy.1

In this setting, conventional palliative radiation therapy (RT) provides both limited tumor control and symptom relief.2 Recent studies suggest that aggressive local therapy, such as surgery and/or RT, may improve oncologic outcomes.3,4

Given the relative radioresistance of sarcomas and their often large size, dose escalated, hypofractionated (HF) RT may improve oncologic outcomes over traditional RT.

We investigated the efficacy of HFRT in improving survival outcomes, palliation, and duration of systemic therapy breaks in patients with sarcoma.

MATERIALS & METHODS

With IRB approval, we retrospectively reviewed 73 consecutive patients with sarcoma who received >10 fractions of HFRT from 2017-2020. HFRT was delivered most commonly using intensity modulated radiation therapy (IMRT) with a simultaneous integrated boost to further escalate the dose.

The rationale for HFRT included the following clinical scenarios:

1. palliative/symptomatic (34%)
2. an unresectable primary (27%)
3. oligometastatic disease (16%)
4. oligoprogressive disease (23%)

Oligometastatic disease was defined as < 5 sites of metastasis based on CT or PET imaging.

Oligoprogressive disease was defined as a limited sites of progressive disease in patients with otherwise stable metastatic disease.

RESULTS

The 1-year disease specific survival was 59%, which was more favorable for patients receiving HFRT for oligometastatic (1-y 100%) or oligoprogressive (1-y 73%) disease (P=0.001).

The 1-y targeted lesion control (TLC) was 73% with 26% developing progression at a median time of 7.5 m (IQR, 5.5-13). A metastatic target (1-y 95% vs 60% primary, P=0.02; HR 0.27, P=0.04) and soft tissue origin (1-y 78% vs 61% bone, P=0.01; HR 0.33, P=0.02) were associated with better TLC on univariate and multivariable analyses.

For patients not planned for adjuvant systemic therapy (n=53), the median systemic therapy break was 9 m (IQR, 4-23), and notably longer in oligometastatic (13 m), oligoprogressive (12 m) or unresectable (13 m) disease.

The rate of distant failure was high with a 6-month DMFS of only 43%. HFRT use for unresectable (P=0.001, HR 0.14) and oligometastatic (P=0.003, HR 0.25) disease were the only factors associated with improved DMFS on multivariable analysis.

CONCLUSIONS

HFRT is an effective treatment strategy for patients with unresectable or metastatic sarcoma to provide durable TLC, symptom relief, and meaningful systemic therapy breaks with limited toxicity.

Patients with unresectable or oligometastatic/progressive disease benefited from longer systemic therapy breaks and lower rates of distant relapse.

If overall disease control is the primary goal for HFRT, patient selection remains crucial as distant relapse is high.

REFERENCES & ACKNOWLEDGEMENTS


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