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25. THE IMPORTANCE OF THE MARGIN OF RESECTION AND USE OF RADIOTHERAPY IN NON-LIPOMATOUS RETROPERITONEAL SARCOMA

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Background: Most retroperitoneal non-lipomatous sarcomas are poorly differentiated and carry significant risk of recurrence following formal surgical resection. Prior studies of retroperitoneal sarcoma include more typically well-differentiated liposarcomas along with tumors of non-lipomatous histologies. These studies have limited ability to measure the value of margin-negative resection and inform clinical decision-making regarding use of radiotherapy in resected non-lipomatous sarcomas.

Methods: We queried the National Cancer Database to identify patients undergoing surgical resection for non-lipomatous retroperitoneal sarcomas between 2004 and 2016. Those with metastatic disease and those receiving intra-operative radiation were excluded. Patients were stratified by tumor size (small < 5cm, intermediate 5-10cm, large > 10cm). Multivariable logistic regression (MVR) was used to identify factors associated with use of radiotherapy. Cox modeling was used to evaluate the association between radiotherapy and margin status and overall survival (OS).

Results: 2,472 patients met inclusion criteria. 1,194 (48.3%) had large, 842 (34.1%) intermediate-sized, and 436 (17.6%) small tumors. 1,497 (60.6%) patients had poorly or undifferentiated histologies. 1,771 (71.6%) underwent margin-negative resection. 906 (36.7%) received radiotherapy. On MVR, positive surgical margins, increasing tumor size, and advanced grade were associated with use of radiotherapy. Across all size categories, margin-negative resection was independently associated with improved OS, while radiotherapy use was associated with improved OS in patients with intermediate and large-sized tumors only. Among patients with tumors >5cm, those with advanced age (HR 1.03, 95% CI [1.02, 1.04]), comorbid disease (CCI 3+ HR 2.47, 95% CI [1.30, 4.66]), positive margins (R1 HR 1.60, 95% CI [1.25, 2.05]), and advanced grade (poorly differentiated HR 3.55, 95% CI [2.30, 5.47]) demonstrated increased risk of death, while female sex (HR 0.79, 95% CI [0.66, 0.95]) and use of radiation (neoadjuvant HR 0.48, 95% CI [0.34, 0.66]; adjuvant HR 0.55, 95% CI [0.43, 0.69]) were associated with improved OS.

Conclusion: In patients presenting with non-lipomatous retroperitoneal sarcomas, margin-negative resection is associated with improved survival independent of tumor size. Radiotherapy is associated with a survival benefit in patients with tumors larger than 5cm only and should not be used in patients with smaller tumors.