44. Soft Tissue Sarcoma of the Retroperitoneum

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Emerging Prognostic Factors for Clinical Care

The authors have not noted any emerging prognostic factors for clinical care at this time.

Risk Assessment Models

Prognostic models are important for cancer staging and treatment. Traditionally AJCC staging has been powerfully driven primarily by a small number of anatomic variables. Increasingly, it is recognized that that increasing the number of variables used for prognosis and supplementing with helpful non-anatomic variables can be extremely helpful for prognosis. In recognition of this, the AJCC endeavored to evaluate additional models to see if they might be helpful in cancer prognosis as adjuncts to traditional staging groups.

The AJCC Precision Medicine Core (PMC) developed and published clear criteria for critical evaluation of prognostic tool quality, which are presented and discussed in Chapter 4.[1] Although developed independently by the PMC, the AJCC quality criteria corresponded fully with the recently developed Cochrane CHARMS tool and TRIPOD criteria for critical appraisal in systematic reviews of prediction modeling studies.[2,3]

A prognostic model for retroperitoneal sarcoma meeting all of the AJCC inclusion/exclusion criteria and meriting AJCC endorsement is briefly presented in this section. A full list of the evaluated models for other cancer types and their adherence to the quality criteria is available on www.cancerstaging.org.

The AJCC Soft Tissue Sarcoma Expert Panel nominated a model predicting overall survival and disease-free survival in patients with retroperitoneal sarcoma – the Gronchi et al model.[4] This model was rigorously compared against the quality criteria developed by the PMC as guidelines for AJCC commendation for prognostication models (see Chapter 4).

In addition, the PMC performed a systematic search of published literature for prognostic models/tools in retroperitoneal sarcoma from January 2011 to December 2015. The search strategy is detailed in Chapter 4. The PMC defined "prognostic model" as a multivariable model where factors predict a defined future clinical outcome (specifically survival). No additional appropriate published models were identified.

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The Gronchi et al model is based on more than 500 patients from three institutions. Nomogram factors included: patient age, tumor size, FNCLCC grade, histologic subtype, multifocality, and extent of resection to predict overall survival at 7 years. An additional validation was performed with more than 1,100 patients.[5] These are large patient cohorts for this rare disease and robustly confirm the usefulness of this model.

TABLE 44.2. Prognostic tools for retroperitoneal sarcoma that met all AJCC quality criteria

Approved Prognostic Tool	Web Address	Factors Included in the Model
Outcome Prediction in Primary Resected Retroperitoneal Soft Tissue Sarcoma: Histology-Specific Overall Survival and Disease-Free Survival Nomograms Built on Major Sarcoma Center Data Sets	http://www.ncbi.nlm.nih.gov/pubmed/23530096	patient age, tumor size, FNCLCC grade, histologic subtype, multifocality, extent of resection

Recommendations for Clinical Trial Stratification

The description of the tumor required for clinical trials varies greatly. For some studies of primary tumors, details of anatomic site and adjoining structures are critical; in studies of metastatic disease, definition of the specific metastatic sites is used for response determination. In nearly all situations, the most detailed definition of the histology is critical—for example, myxoid/round cell liposarcoma instead of liposarcoma—because the biology of each sarcoma subtype is distinct.

Anatomic primary location
Histology
Grade
AJCC stage
Relevant immunohistochemical markers, if any
Relevant molecular alterations, if any

Bibliography

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1. Kattan MW, Hess KR, Amin MB, et al. American Joint Committee on Cancer acceptance criteria for inclusion of risk models for individualized prognosis in the practice of precision medicine. *CA: a cancer journal for clinicians.* 2016.
2. Moons KG, Altman DG, Reitsma JB, et al. Transparent Reporting of a multivariable prediction model for Individual Prognosis or Diagnosis (TRIPOD): explanation and elaboration. *Annals of internal medicine.* 2015;162(1):W1-73.
3. Moons KG, de Groot JA, Bouwmeester W, et al. Critical appraisal and data extraction for systematic reviews of prediction modelling studies: the CHARMS checklist. *PLoS medicine.* 2014;11(10):e1001744.
4. Gronchi A, Miceli R, Shurell E, et al. Outcome prediction in primary resected retroperitoneal soft tissue sarcoma: histology-specific overall survival and disease-free survival nomograms built on major sarcoma center data sets. *J Clin Oncol.* 2013;31(13):1649-1655.
5. Raut CP, Miceli R, Strauss DC, et al. External validation of a multi-institutional retroperitoneal sarcoma nomogram. *Cancer.* 2016.