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Urothelial Cancer

Prognostic Role of Lymphovascular Invasion in Patients with Urothelial Carcinoma of the Upper Urinary Tract: An International Validation Study

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Abstract

Background: Lymphovascular invasion (LVI) identified following pathologic slide review has been shown to be an independent predictor of recurrence-free survival (RFS) and cancer-specific survival (CSS) in a multicentre series of patients undergoing radical nephroureterectomy (RNU) for upper urinary tract urothelial carcinoma (UTUC). However, the validity of LVI in everyday practice, where pathologic re-review of all slides is uncommon, has not been assessed.

Objective: Evaluate the prognostic role of LVI in an international cohort of patients treated with RNU for UTUC without pathologic slide review.

Design, setting, and participants: Data from 762 patients treated with RNU for UTUC were collected at nine centres located in Europe, Asia, and Canada.

Intervention: RNU without neoadjuvant chemotherapy.

Outcome measurements and statistical analysis: Univariable and multivariable Cox regression models addressed RFS and CSS after surgery.

Results and limitations: LVI was present in 148 patients (19.4%). At a median follow-up of 34 mo, 23.5% of the patients developed disease recurrence and 19.8% died of UTUC. The 5-yr RFS and CSS rates were 79.3% and 82.1%, respectively, in the absence of LVI compared with 45.1% and 45.8%, respectively, in the presence of LVI ($p < 0.0001$). On multivariable Cox regression analyses, LVI was an independent predictor of RFS (hazard ratio [HR]: 3.3; $p = 0.005$) and CSS (HR: 5.9; $p < 0.0001$). Similarly, among patients with pN0/Nx disease, LVI was an independent predictor of RFS (HR: 2.1; $p = 0.001$) and CSS (HR: 2.3; $p < 0.0001$). Retrospective study design was the major limitation of the study.

Conclusions: In a large multicentre series of patients treated with RNU for UTUC and for which no pathologic slide review was performed, LVI was present in approximately 20% and was an independent predictor of both RFS and CSS. LVI status should always be included in the pathologic report of RNU specimens, and patients with LVI should be considered for adjuvant therapy studies.

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