

Title: Clinical stage I epithelial ovarian cancer: predictors of surgical staging and prescription of adjuvant therapy

Author: Abigail Pyne MS, Shakthi Unnithan, MS, Alaattin Erkanli, PhD, Emma Rossi MD

Financial Support: This research project was funded by the Gynecologic Cancer Research Fellowship and the Kirkpatrick scholarship. This is a scholarship to support Duke University medical students who choose to spend their third year involved in some aspect of gynecologic cancer research under the supervision of a Duke Gynecologic Cancer Program faculty member.

ABSTRACT:

Objective: This study evaluated predictors of surgical staging with lymphadenectomy (LA) and prescription of adjuvant therapy in a cohort of patients with clinical stage I ovarian cancer.

Methods: This retrospective cohort study assessed surgical patients with clinical stage I ovarian cancer at a single institution from 2013-2020. Patients with non-epithelial malignancies or borderline tumors were excluded. Descriptive statistics and multivariable logistic regression models were utilized to assess the impact of clinical variables and prescription of adjuvant systemic therapy on the primary outcome of interest: the extent of surgical staging with LA (as defined by the National Comprehensive Cancer Network (NCCN) guidelines). Analysis used Fisher Exact and ANOVA F-tests for descriptive statistics and type III Wald tests in logistic regression models.

Results: Of 101 patients with clinical stage I epithelial ovarian cancer, 5 had false negative frozen section results. Among the correctly identified 96 patients, 27%(n=26), 60%(n=58), and 13%(n=12) had no LA performed, partial LA, and full LA, respectively. Four patients had mucinous carcinoma on frozen section, all of whom received partial LA. In separate (marginal) analysis not adjusted for multiple testing, extent of staging with LA was significantly associated with Charlson comorbidity index, route of surgery, intraoperative time, dense tumor adhesions, intraoperative frozen section findings, and final tumor grade. In the multivariable logistic regression model, ambiguous intraoperative frozen section findings were significantly associated with 88% reduction in the odds of any LA staging compared to no LA staging (OR:0.12, 95% CI:0.03,0.58, p value=0.0079), while the presence of dense tumor adhesions was associated with a 91% reduction in the odds of any LA staging (OR:0.09, 95% CI:0.01,0.60, p value=0.0129), controlling for other variables. Extent of LA staging was not significantly associated with the prescription of systemic therapy or number of cycles. Intraoperative cyst rupture was associated with increased prescription of adjuvant therapy (OR:12.95, 95% CI:1.18, 141.94, p value = 0.0360). Extent of LA was not associated with intraoperative or postoperative complications.

Conclusion: 13% of patients received complete LA staging as recommended by NCCN guidelines. Staging with lymphadenectomy was more likely to be omitted when the diagnosis of cancer was uncertain (ambiguous intraoperative frozen section findings) and when chemotherapy prescription could be anticipated by intraoperative findings (the presence of dense tumor adhesions). Intraoperative cyst rupture was associated with increased prescription of chemotherapy. Extent of LA did not influence the prescription of adjuvant therapy or perioperative complications.