

**Outcomes of women with high-grade and low-grade advanced stage serous epithelial
ovarian cancer**

Allison Gockley, MD^{1,2}; Alexander Melamed, MD, MPH^{1,2}; Amy J. Bregar, MD, MS²; Joel T.
Clemmer, BA²; Michael Birrer, MD, PhD³; John O. Schorge, MD²;
Marcela G. del Carmen, MD, MPH²; J. Alejandro Rauh-Hain, MD²

1. Department of Obstetrics and Gynecology, Brigham and Women's Hospital, Harvard Medical School, Boston, USA
2. Division of Gynecologic Oncology, Vincent Obstetrics and Gynecology, Massachusetts General Hospital, Harvard Medical School, Harvard Medical School, Boston, USA
3. Department of Medicine, Massachusetts General Hospital, Harvard Medical School, Boston

Objective: To compare outcomes of women with advanced stage low-grade serous ovarian cancer and high-grade serous ovarian cancer, and identify factors associated with survival among patients with advanced stage low-grade serous ovarian cancer.

Methods: Patients diagnosed with grade 1 or 3, advanced-stage (stage IIIc and IV) serous ovarian cancer diagnosed between 2003 and 2011 were identified from the National Cancer Data Base. The impact of grade on survival was analyzed using the Kaplan-Meier method. Factors predictive of outcome were compared using the Cox proportional hazards model. Among women with low-grade serous ovarian cancer, propensity score matching was used to compare all-cause mortality among similar women who underwent chemotherapy and lymph node dissection and those who did not.

Results: A total of 16,854 (95.7%) patients with high-grade serous ovarian cancer and 755 (4.3%) patients with low-grade serous ovarian cancer were identified. Median overall survival was 40.7 months among high-grade patients and 90.8 months among women with low-grade tumors ($p < 0.001$). Among patients with low-grade serous ovarian cancer in the propensity-score matched cohort, the median overall survival was 88.1 months among the 140 patients who received chemotherapy and 95.9 months among the 140 that did not received chemotherapy ($p = 0.7$). Conversely, in the lymph node dissection propensity-matched cohort median overall survival was 106.5 months among the 202 patients who underwent lymph node dissection and 58 months among the 202 who did not ($p < 0.001$).

Conclusions: When compared to high-grade serous ovarian cancer, low-grade serous ovarian cancer is associated with improved survival. In patients with advanced-stage low-grade serous ovarian cancer, lymphadenectomy but not adjuvant chemotherapy was associated with improved survival.