

## Comparison of P53 Mutation Status, Primary Cytoreductive Surgical Outcomes, and Overall Survival in Patients with Ovarian Cancer

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**Objective:** We examined both p53 mutation status and primary surgical cytoreduction status in ovarian cancer patients to define possible characteristics associated with improved survival.

**Methods:** 270 ovarian cancer samples were obtained from a large divisional tumor bank. cDNA was extracted from stored tumor tissue, and the entire open reading frame (exon 2-11) was amplified and sequenced in both directions. Patients were then divided into 2 cohorts based on p53 mutational status. Surgical, clinical and survival data was then obtained.

**Results:** Of the 270 identified patients, 258 were evaluable for mutation status and clinical correlation. 160 (62%) patients were found to have a p53 mutation. Poorly differentiated tumors

were more frequently associated with p53 mutations (80% vs. 67%;  $p=0.0015$ ). No statistically significant difference between stage, histology, or overall survival was noted between the 2 groups.

Optimal cytoreduction,  $n=162$  (64%), was not different between mutated (61%) or non-mutated groups (65%;  $p=0.59$ ). Optimal cytoreduction was however, associated with a statistically significant better overall survival among both the p53 mutated ( $p=0.0007$ ) and non-mutated patients ( $p<0.0001$ ). In the p53 mutation group the median survival for both the optimal and suboptimal patients is approximately 4 years. While in the non-mutated group the median survival is 5 years for the optimally cytoreduced vs. 1 year for the suboptimal.

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WAGO Annual Meeting  
June 16-18, 2011  
Stein Eriksen Lodge  
Park City, Utah

Multivariate analysis showed p53 mutation was not predictive of survival for optimally cytoreduced patients (HR=1.315; 95%, CI 0.851-2.031). The risk of death decreased in suboptimally cytoreduced patients with a p53 mutation (HR=0.553; 95%, CI 0.343-0.890). Additionally, for those patients who are suboptimally cytoreduced there is a statistically significant difference in

survival that favors the p53 mutation group (p=0.015).

**Conclusions:** Optimal surgical cytoreduction continues to be an important prognostic variable in patients with ovarian cancer independent of p53 mutational status. Among patients with suboptimal cytoreduction a p53 mutation may offer a survival advantage.