

public hospitals or satellite clinics may provide the support necessary to achieve equivalent cancer outcomes at outreach programs.

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Poster #15

Novel germline cyclin dependent kinase 4 variant as a suspected driver mutation for high-grade serous ovarian epithelial cancer

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Objectives: To analyze the role of a novel cyclin dependent kinase 4 (CDK4) variant of uncertain significance as a potential driver mutation in high grade serous epithelial ovarian cancer (HGSOC) and to demonstrate the utility of precision medicine for the translational management of gynecologic oncologic disease.

Methods: We extracted DNA from samples provided by a patient with recurrent ovarian cancer and performed whole exome sequencing (WES) at a depth of 150 million germline and 300 million tumorreads. To identify single nucleotide, insertion, deletion and splice site alterations we utilized a Genome Analysis ToolKit bioinformatics pipeline and computational engine to align, call and annotate germline and genomic alterations. Filtering with a threshold Combined Annotation Dependent Depletion (CADD) score > 15 identified suspected pathologic variants. Immunohistochemical (IHC) staining of tumor tissue for phosphorylated retinoblastoma (Rb) protein was performed using Phospho-Rb (Ser807/811). In vitro molecular modeling systems with peptide 2A self-cleaving polycistronic gene expression vectors in epithelial ovarian cancer cell lines (CaOV-3, OV-90 and SK-OV-3) were used to elucidate the genetic mechanisms governing tumor progression.

Results: WES identified a germline missense alteration in cyclin dependent kinase 4 (CDK4) (n.108 C>T). Sanger sequencing confirmed this alteration; and CADD analysis generated a score of 24, implicating this change as a likely pathologic driver variant. CKDK4 along with CDKN2A function to regulate cell cycle progression via phosphorylation of the tumor suppressor gene, retinoblastoma (Rb). Consistent with predicted models, IHC demonstrated upregulated inactivating phosphorylation of Rb at Ser807/811. In vitro studies clarifying the regulatory dysfunction of CDK4, n.108C>T, and the therapeutic use of CDK4 inhibitors with polycistronic molecular modeling of the CDKN2A/CDK4/Rb regulatory axis in epithelial ovarian cancer cells lines are ongoing.

Conclusions: CDK4 V37M is a novel germline variant that is highly likely to be a pathogenic driver mutation in this patient's HGSOC. Identification of this putative mutation could have important therapeutic implications as CDK4 inhibitors have been shown to have promising biologic activity in ovarian cancer cell lines. This translational investigation demonstrates the value of precision medicine to inform therapeutic decision-making for gynecologic cancers.

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Poster #16

Racial disparities in women with stage IIIC and IV epithelial ovarian cancer receiving neoadjuvant chemotherapy versus primary debulking surgery - A National Cancer Database study

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Objectives: Our objective is to use data from the National Cancer Database (NCDB) in order to determine if African American and Hispanic women are more likely to receive neoadjuvant chemotherapy (NACT) than primary debulking surgery (PDS), when compared to their white counterparts, since the much debated European trials showed that NACT was not inferior to PDS.

Methods: A retrospective cohort study was performed using data originating between the years of 2010-2014 from women with stage IIIC or IV epithelial ovarian cancer. Only women of white, African American, and Hispanic ethnicities were included, and all individuals were identified to have received either neoadjuvant chemotherapy or primary debulking surgery. Descriptive statistics were computed, and continuous variables were assessed for normality. Groups were compared using ANOVA or non-parametric medians tests for continuous variables, and chi-squared tests were used for dichotomous or categorical variables. A logistic regression was then used to identify if predictors of treatment. A P-value of 0.05 was identified to be statistically significant.

Results: A total of 19,889 women with stage IIIC and IV epithelial ovarian cancer were identified to have received NACT or PDS, and identified themselves as either white, African American, or Hispanic. A total of 15,024 (75.5%) were treated with PDS, while 4,865 women (24.5%) were treated with NACT. Of those treated with NACT, 24.5% were white, 27.0% were African American, and 22.1% were Hispanic (p= 0.005). When adjusting for age, facility type, facility location, payer source, income, education level, comorbidity score, histology, grade, and tumor size, being African American was a predictor of receiving NACT with an adjusted odds ratio (95% CI) of 1.308 (1.120-1.528). Although 30-day mortality rates did not vary significantly amongst the three groups (p 0.386), the 90-day mortality rates were significantly different for white, African American, and Hispanic women (2.0% vs 2.9% vs 1.6%, p=0.013). When comparing NACT to PDS, the 30-day and 90-day mortality rates were highest in the NACT group (1.1% vs 0.2%, p<0.001 and 2.7% vs 1.9%, p<0.001).

Conclusions: Neoadjuvant chemotherapy is being used in almost 25% of women with stage IIIC and IV epithelial ovarian cancer, but this treatment course is associated with worse 30-day and 90-day mortality rates. Evidence suggests that being African American is a predictor of receiving NACT.

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Poster #17

Depth of bowel invasion in ovarian cancer is not associated with worse outcomes

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Objectives: The FIGO staging consensus agreement from 2012 indicates that bowel mucosal involvement for epithelial ovarian cancer (EOC) should be assigned to stage IV disease. Finding no evidence for this recommendation, we examined the impact of recto-sigmoid colonic invasion on survival based on depth of invasion.

Methods: Patients having recto-sigmoid resection to achieve complete gross resection for stage IIIC/IV EOC between 2003 and 2011 were included. For this study, mucosal involvement was not considered stage IV. Degree of bowel invasion was defined as: serosal/subserosal vs. muscularis/submucosa/mucosa. Patients with only mesenteric involvement were excluded. Intraperitoneal disease (IP) dissemination patterns were defined as pelvic, lower abdomen, upper abdomen, and miliary disease. Comparisons between groups were evaluated using the log-rank test for progression free and overall survival (PFS, OS) and the chi-square test for IP dissemination pattern.

Results: Eighty-five patients were included with a mean age of 64.5 years. Most cases were serous (87.1%) and stage IIIC (83.5%). There were 53 (62.4%) patients with serosal/subserosal and 32 (37.6%) with muscularis/submucosa/mucosa invasion. Although not statistically significant, PFS and OS both favored cases with deeper invasion (serosal/subserosal vs. muscularis/submucosal/mucosal invasion: median PFS, 18.2 vs. 33.5 months, $p=0.34$; median OS, 51.5 vs. 82.3 months, $p=0.46$). We did observe that patients with serosal/subserosal involvement (vs. those with deeper invasion) were more likely to have upper abdominal or miliary disease (67.9% vs. 48.4%, $p=0.08$).

Conclusions: We find no evidence that deeper recto-sigmoid colon invasion carries a worse prognosis in ovarian cancer. Our observations do not support assignment to a higher FIGO stage (IV) based solely on this factor. Our findings suggest a correlation to disease pattern and depth of invasion and this may be linked to molecular factors.

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Poster #18

Use of Transvaginal Ultrasound in the Evaluation of Endometrial Pathology in Women with a History of Tamoxifen Use and Postmenopausal Bleeding

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Objectives: Tamoxifen use is associated with endometrial thickening and the development of a range of endometrial pathologies, including polyps, hyperplasia, and cancer. The primary objective of this study was to evaluate if transvaginal ultrasound (TVS) can be used in tamoxifen-treated women with postmenopausal bleeding (PMB) to minimize unnecessary testing when endometrial stripe thickness (EMS) is ≤ 4 mm. The secondary objective was to evaluate the predictive value of TVS in the diagnosis of endometrial pathologies in tamoxifen-treated women with PMB.

Methods: This was a retrospective chart review of women treated between 2002 and 2016 with current or previous tamoxifen use, PMB, evaluation by TVS with measurement of EMS, and a concurrent endometrial pathology. The exclusion criterion was a previously diagnosed uterine pathology. After a chart review of over 500 women, we identified 153 who met the inclusion criteria. All data were collected and managed using REDCap.

Results: Of the 153 women who met the inclusion criteria; four (3%) were diagnosed with endometrial cancer (mean EMS of 27.5 mm; range, 18–36 mm), 21 (13%) with endometrial hyperplasia (mean EMS of 16.7 mm; range, 5–32 mm), 67 (44%) with endometrial polyps (mean EMS of 12.6 mm; range, 2–28 mm), 3 (2%) with endocervical polyps (mean EMS of 10.0 mm; range, 6–11 mm), 26 (17%) with proliferative endometrium (mean EMS of 9.1 mm; range, 2–26 mm), and 32 (21%) with atrophic endometrium (mean EMS of 7.3 mm; range, 2–23 mm). A total of 33 (22%) women had an EMS of ≤ 4 mm. No patient with an EMS of ≤ 4 mm was diagnosed with endometrial cancer. TVS measurement of EMS using a ≤ 4 mm cut-off for the diagnosis of endometrial cancer had a negative predictive value of 100%, positive predictive value of 3%, sensitivity of 100%, and specificity of 23%.

Conclusions: No endometrial cancer or endometrial hyperplasia was missed when using TVS measurement of EMS with a threshold of ≤ 4 mm; therefore, we recommend using these same guidelines for both tamoxifen- and non-tamoxifen-treated women with PMB. These guidelines, as proposed by the American College of Obstetrics and Gynecology, suggest the use of TVS for the evaluation of structural anomalies and measurement of EMS with endometrial sampling if the

EMS is >4 mm, unless bleeding persists. Persistent bleeding should be an indicator for endometrial sampling. Using these guidelines will lead to further minimization of unnecessary invasive and costly testing for this population of women.

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Poster #19

Evaluating the impact of a history of breast cancer on chemotherapy toxicities experienced in women with high grade serous ovarian cancer

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Objectives: To determine if a history of breast cancer with or without subsequent therapy affects toxicities experienced by women undergoing chemotherapy for high grade serous ovarian cancer

Methods: This is a single institution retrospective chart review. Women with high-grade epithelial ovarian cancer diagnosed between 2010 and 2016 were included. Patients were dichotomized based on a prior history of breast cancer. Those with a history of breast cancer were compared to those without prior breast cancer and survival data including progression free and overall survival were calculated. SAS v9.0 was used for statistical analysis.

Results: 104 patients were identified with the diagnosis of high grade serous ovarian cancer during the study time frame. Of these, 22 (21.2%) carried a history of breast cancer and 82 (78.8%) did not have a prior history. Patients with a history of breast cancer were significantly older than those without a history (65 vs 58.5, $p=0.293$). These two groups were similar, however, with regards to race, stage at diagnosis, and grade of disease. Patients with and without a history of breast cancer also had similar baseline platelets (350 vs 349), $p=0.58$ as well as ANC (4248 vs 5633, $p=0.1877$). When considering number of treatment delays, number of dose reductions, rates of early discontinuation, and post therapy performance status, patients with a history of breast cancer tolerated chemotherapy as well as those women without a history of breast cancer. Similarly, the number of cycles in which patients experienced grade 3 or 4 neuropathy or ANC were not significantly different between the two groups (1.08 vs 0.88, $p=0.27$ and 1.33 vs 1.27, $p=0.89$, respectively). Grade 3 or 4 thrombocytopenia was an uncommon complication, occurring in 0.25 chemotherapy cycles in patients with a history of breast cancer and 0.42 cycles in those without a history of breast cancer ($p=0.51$).

Conclusions: A prior history of breast cancer, whether treated with chemotherapy or radiation therapy, did not negatively impact tolerability of chemotherapy in women treated for high grade serous ovarian cancer. While these results are promising, many of the patients with a history of breast cancer did not receive chemotherapy for their disease, which may minimize toxicities observed in this group.

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Poster #20

Screening type II endometrial cancer patients for genetic mutations in an underserved population

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Objectives: Consideration of genetic assessment for patients with endometrial cancers is recommended due to the risk of Lynch Syndrome. ACOG/SGO recommends choosing one approach to