

Poster #12**Health disparities in fertility preservation for women with stage IA and stage IB cervical cancer**

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Objectives: Fertility preservation is an option for women with stage IA and some IB cervical cancers (CC). Our aim was to determine if race or insurance status was associated with the utilization of fertility preserving treatment (FPT) of early stage CC.

Methods: Women diagnosed with stage IA and IB CC between 2010 and 2014 were identified from the Louisiana Tumor Registry. FPT included cervical conization, loop electrosurgical excision procedure, or trachelectomy. Exenteration, hysterectomy and radiation therapy was considered fertility sacrificing treatment (FST). Association between FPS, and age, stage, race, and insurance status were evaluated using chi squared tests.

Results: Of 399 women, 189 had stage IA and 210 had stage IB CC. Women aged 16–40 were more likely than those > age 40 years to receive FPT (21% versus 5%, $p=0.01$) for both stage IA group (36% vs 12%, $p<0.001$) and IB group (6% vs 0%, $p<0.01$). Women with stage IA were more likely than those with stage IB to receive FPT (24% vs. 2%, $p<0.001$). Receipt of FPT was not statistically different between non-Hispanic whites (NHWs) and non-Hispanic blacks (NHBs) for stage IA (24% vs. 19%) and stage IB (12% vs 11%). Most women in the cohort (58%) had private insurance; 31% had Medicaid, and 8% had no insurance. Women without insurance were more likely to receive FPT than those with Medicaid and private insurance (24% vs. 14%, 9%, $p=0.02$). This remained true for stage IA alone, where 16% of privately insured vs. 44% of uninsured women received FPT ($p=0.01$).

Conclusions: It is impossible to state if fertility preservation was a goal of treatment for these women using this limited statewide cancer database. Not surprisingly, younger women with earlier stage disease were more likely to receive FPT. Race made no difference. Unexpectedly, women with less insurance received FPT at higher rates. One explanation might be limited access to care for those with less insurance and inadvertent FPT. Alternatively, uninsured and underinsured women can often only seek care at major academic centers and it is feasible that in these high volume academic centers, providers are more comfortable offering FPT.

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Poster #13**Early postoperative increases in platelet count is associated with trend towards improved survival in high grade serous ovarian cancer**

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Objectives: Preoperative thrombocytosis has been shown to adversely affect ovarian cancer prognosis. However, platelets are also acute phase reactants and play an important role in inflammatory responses and immune function. We therefore hypothesized that the response of platelet and white blood cell (WBC) counts to the stress of surgery would correlate with prognosis.

Methods: A high grade serous ovarian cancer (HGSOC) database was used to identify 310 women with advanced stage disease. Using the initial debulking surgery as the index date in the electronic medical record, the rate of change in platelet and WBC count from postoperative days 0–5 was calculated based on the slope of the linear regression model and correlated with clinico-pathologic factors.

Results: The cohort was divided by quintiles and the fifth quintile (fastest slope of rise in platelets) was twice that of the first quintile. In a univariate analysis, faster increases in the platelet count were

associated with better overall survival (OS) ($p=0.01$). Patients in the fifth quintile survived a median of 57 months (95% CI 27.7–74.9) compared to 34 months (95% CI 24.4–38.9) in the first quintile, and this effect did not vary significantly by stage, initial versus interval debulking, or optimal debulking. In multivariate analysis, faster increases in postoperative platelet count remained significantly associated with improved survival ($p=0.002$) independent of stage, age, ascites, and optimal debulking (HR versus first quintile=0.56, $p=0.035$). Progression free survival (PFS) was not statistically different, however, when adjusted for stage, age, ascites, and optimal debulking, faster increases in slope was associated with increased PFS ($p=0.03$). Surprisingly, faster increases in platelet count was independent of platinum sensitivity with a Spearman rank correlation coefficient of $r=0.03$, $p=0.31$. No association was found between the rate of change of WBC count and survival.

Conclusions: Advanced stage HGSOC patients with a robust increase in platelet count in the immediate postoperative period have a trend towards improved survival independent of platinum sensitivity. The early postoperative response of platelets to the stress of surgery may be a surrogate marker for immune function that may be used to identify a subset of patients that respond to immunotherapy. Further research on intratumoral immune markers in this subset of patients is needed.

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Poster #14**Do patients with cervical cancer cared for at a tertiary hospital have greater odds of survival than those at a public safety-net hospital?**

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Objectives: To compare two populations of cervical cancer patients treated by the same physicians at two different facilities: an academic tertiary care hospital and a public safety-net hospital; and to investigate whether care setting (tertiary care versus public hospital) is associated with survival.

Methods: Patients diagnosed with cervical cancer between January 2006 and December 2016 were identified by tumor registry databases at a tertiary care hospital and a public safety-net hospital. Radiation services for the public hospital are provided through the tertiary care center. Patients who were diagnosed, or received cancer care, at any other institution were excluded. Further demographic and treatment information was obtained via each hospital's electronic medical record. The primary outcome was two-year survival.

Results: A total of 128 patients were both diagnosed and treated for cervical cancer during the study period. Of these, 118 patients were followed for a minimum of two years and, thus, included in the study population. 68 patients (58%) were managed at the tertiary care hospital, and 50 (42%) were managed at the public hospital. Public hospital patients were younger, more racially and ethnically diverse and less likely to be English speakers. Tertiary care patients were more likely to be smokers. The two-year overall survival rates for tertiary care and public patients were 79% and 82%, respectively. Younger age, earlier stage and surgery (rather than radiation) as initial treatment were factors associated with survival on univariate analysis. When controlling for care setting, tobacco use and first treatment modality, earlier stage and younger age and remained independently associated with survival.

Conclusions: Care setting (academic tertiary versus public safety-net hospital) was not associated with survival among patients with cervical cancer treated by the same gynecologic oncologists. Along with access to radiation, the presence of gynecologic oncologists at

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. CDK4 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.