consideration of genetic assessment for LS: universal screening, screening if diagnosed at age <50, or testing patients at risk by family history criteria. Patients with low socioeconomic resources have barriers to health care access which is an impediment to universal screening. Type II endometrial cancer patients however are often older at time of diagnosis and studies have suggested that there may be an additional association with BRCA mutations. Our objectives were to examine the efficacy of these screening approaches to identify genetic mutations in type II endometrial cancer patients.

Methods: We reviewed patients with a diagnosis of uterine serous, clear cell and carcinosarcoma from January 2009 through June 2017. Clinical, pathologic, immunohistochemistry (IHC), and mutational analysis (MA) results were obtained. Choice of genetic screening approach was left to the discretion of the provider and was recorded. We examined the family history of all of the patients and recorded the incidence of personal or family history of other cancers including breast cancer. For those women who had MA performed, we recorded the results.

Results: 125 women with type II endometrial cancer were retrospectively reviewed. Only 7 patients (5.6%) met age criteria for testing and 8 patients (6.4%) met family history criteria. 11/15 patients completed genetic testing by a certified genetic counselor. 7 additional were referred for genetic testing at physician discretion, often due to family or personal history of cancer that did not meet Amsterdam or Bethesda guidelines, but were non-compliant. 3 patients (2.4%) had Lynch syndrome, all identified by IHC. One of the LS positive patients met age and family history criteria for testing, one did not meet criteria but had a personal history of breast cancer, and the last was discovered after being sent for testing at physician discretion. 35 (28%) patients also had a personal or family history of breast cancer. None of the patients who completed MA testing had a diagnosis of a BRCA 1 or 2 mutation. 1 patient had a deleterious p53 mutation on panel genetic testing.

Conclusions: The number of type II endometrial cancer patients meeting age or family history criteria was low at 12%, and only one of the three LS positive patients in this study met criteria for testing. Therefore, in type II as opposed to type I endometrial cancer patients, the universal screening approach may be warranted, even in a low resource population, and consideration should be given to panel testing. IHC should be the first screening method employed. There is an additional high rate of personal or family history of breast cancer in this population.

doi:10.1016/j.ygyno.2019.03.210

Poster #21

Molecular and pathologic features of endometrial cancer in young patients

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Objectives: To evaluate molecular and pathologic features of endometrial cancer (EC) in patients ≤40 years of age.

Methods: Patients with EC who were managed at a large academic practice between 2004 and 2017 were retrospectively reviewed. Patients were stratified by age into two groups: patients <40 years and those aged 40-60 years. Patients >60 years of age were excluded. Clinical and pathologic variables were abstracted and compared between the two age groups using linear regression. Universal screening for lynch syndrome with immunohistochemistry for mismatch repair proteins (MMR) was performed prospectively from 2012 - 2017. MMR expression of MLH-1, MSH-2, PMS2 and MSH6 was compared between the two age groups. The incidence and patterns of recurrence were also assessed.

Results: Overall, 564 patients were eligible for inclusion in this study, of which 87 (15%) were <40 and 477 (85%) were between 40-60 years. As expected, patients aged 40-60 were more likely to have medical comorbidities including hypertension and cardiac disease. However, there was no significant difference in mean BMI among the two groups (40.±13 vs. 35±9.6; p 0.18). Age <40 was associated with a higher rate of lower uterine segment involvement (28 vs. 23%, p <0.001), but lower rates of LVSI (16% vs. 29%, p = 0.019) and myometrial invasion (53% vs. 34% with non-invasive tumors in patients <40 and 40-60, respectively, p<0.005. There was no significant difference in stage distribution, tumor size or histology between the two groups. Synchronous ovarian cancers were identified in 9% of patients <40 vs. 0.5% of those aged 40-60 (p <0.001). Patients aged 40-60 were more likely to have MLH1 or PMS2 loss of expression compared to those <40. Overall, only 2 patients in <40 year group and 4 in 40-60 year group had a known diagnosis of lynch syndrome (p=0.22). Patients <40 had a significantly higher risk of recurrence than those between 40-60 (12% vs. 5.5%, p= 0.031). Overall, 21 patients (25%) <40 years opted for fertility sparing treatment and only 5 of these patients (24%) had a complete response.

Conclusions: EC in young patients (<40 years) is characterized by lower uterine segment involvement, absence of LVSI, and absence of myometrial invasion. The incidence of synchronous ovarian cancer in patients <40 is 9%, which possibly accounts for the higher rate of recurrence in this population. Hence, counseling on fertility sparing treatment should be undertaken with caution.

doi:10.1016/j.ygyno.2019.03.211

Poster #22

Prognostic factors associated with survival following platinum based therapy in advanced/recurrent endometrial cancer

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Objectives: To identify prognostic factors predictive of response to chemotherapy in advanced or recurrent endometrial cancer.

Methods: In this multi-institutional retrospective study, 155 patients with advanced or recurrent endometrial cancer who received systemic chemotherapy were evaluated for baseline clinical characteristics. Multivariable analysis was conducted to identify prognostic factors predictive of progression free (PFS) and overall survival (OS) time following recurrence using a Cox proportional hazards model. Prognostic factors predictive of response were identified using a logistic regression model.

Results: Of the 155 patients included in the analysis, 125 patients (81%) were Caucasian, 24 patients (15%) were African American, 1 patient (1%) was Asian, 3 patients (2%) were Native American, and 2 patients (1%) were unknown. At time of receipt of chemotherapy, 34% were recurrent and 66% were advanced stage. Regarding histology, 90 patients (72%) had endometrioid adenocarcinoma, 31 patients (25%) had serous adenocarcinoma, and 4 patients (3%) had clear cell adenocarcinoma. Of patients with endometrioid adenocarcinoma, 15%, 30% and 55% were grade 1, 2, and 3 respectively. Survival analysis identified 4 factors prognostic of poor response: African-American (AA) race (median OS 43 months non AA vs 29 months AA, p<0.01), grade (median OS 74 months grade 1, 59 months grade 2, 30 months grade 3, p<0.01), histology (median OS 51 months endometrioid, 32 months serous, 16 months clear cell, p<0.01), and multiple recurrent lesions (single 100% CR/PR vs multiple 61%

CR/PR, p<0.01). Factors that did not affect prognosis include stage, lymphovascular space invasion, depth of invasion, mismatch repair status, performance status after recurrence, or adjuvant chemotherapy with initial radiation therapy.
Conclusions: Four prognostic factors may have utility in clinical practice to identify women who are less likely to respond to systemic chemotherapy. External validation of this predictive model is needed. Receipt of a prior radiosensitizer does not adversely affect response to subsequent chemotherapy following recurrence and should not be an exclusion factor for clinical trials evaluating systemic therapies.

doi:10.1016/j.ygyno.2019.03.212

Poster #23
High prevalence of BRCA deleterious mutations in African-American women with ovarian and/or breast cancer

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Objectives: To determine the frequency of genetic mutations predisposing to breast and ovarian cancer (BRCA) in an African-American population of great genetic diversity, and to determine possible barriers to testing in that community.
Methods: As part of an ongoing Quality Improvement study, the records of women self-identified as African-American and diagnosed with and treated for breast and/or ovarian cancer from 2014-17 were examined to determine: 1) whether BRCA 1/2 testing was offered and/or accepted, 2) presence of deleterious mutations, 3) presence of variants of undetermined significance, 3) the timing of and reasons for testing in relation to treatment, 4) demographics.
Results: 56 women (42-Breast, 14-ovary) were identified as being diagnosed with breast and/or ovarian cancer in the study period, and had testing performed. 10/56 (17.8%) including 8 with breast cancer and 2 with ovarian cancer, had deleterious mutations. 4/56 (7.1%) (all breast) had variants of undetermined significance. No subjects who were offered testing declined. 27/56 subjects were diagnosed in 2014-2015, and of these, 3/27(11%) underwent testing prior to/during initial treatment. 29 subjects were diagnosed in 2016-17, and 27/29(93%) underwent testing prior to/during initial treatment. Reasons for deferring testing included lack of awareness and inability to pay for testing.
Conclusions: Hereditary predisposition to breast/ovarian cancer, as determined by BRCA 1-2 genetic testing, is more common than anticipated in this African-American population of high genetic diversity. The use of genetic testing in this population has been limited by lack of awareness and/or inability to pay for the test. Standard screening for and counseling regarding genetic cancer risk and testing should be performed in this population.

doi:10.1016/j.ygyno.2019.03.213

Poster #24
Assessing disease-related outcomes in morbidly obese endometrial cancer patients

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Objectives: To evaluate the impact of morbid obesity on disease outcomes in women with low risk and high risk endometrial cancer (EC).
Methods: Patients diagnosed with EC from 1/1/2005-12/30/2015 were evaluated. Patients were stratified by body mass index (BMI) (< or ≥40kg/m2) and risk of recurrence (low risk (LR): stage 1-2, low or moderate grade, <50% myometrial invasion and endometrioid type; high risk (HR): stage 3-4, high grade, >50% myometrial invasion, or non-endometrioid). Patient demographics, tumor characteristics, and treatment-related outcomes were reviewed. Exclusion criteria included patients with benign disease, unknown characteristics needed for risk stratification, or BMI not available. Pearson chi-square test was used for categorical variable and ANOVA and Kruskal-Wallis for continuous factors. Analysis was performed using SAS.
Results: Out of 1775 patients included in the study, 1327 (74.8%) had a BMI <40 and 448 (25.2%) were ≥ 40. Patients with a BMI ≥ 40 were significantly younger (58.9 vs 64.2 yrs), more likely to have endometrioid histology (77.5% vs 67%), lower grade (52.5% vs 37.9%), earlier stage (78.5% vs 68.8% stage 1), myometrial invasion <50% (65.8% vs 50.3%), and lower LVSI (23.0% vs 35.5%). Stratified by risk, LR patients with BMI ≥ 40 comprised 39% of the entire study population and were more likely to be younger, of black race, uninsured. Overall, 40% of LR patients underwent lymphadenectomy. Compared with patients with BMI <40, those with BMI ≥ 40 in the LR group were significantly less likely to undergo lymphadenectomy (p <0.0005). Within the HR group, lymphadenectomy was performed in 72% of patients. Those with BMI ≥ 40 were significantly less likely to undergo lymphadenectomy (p <0.004). There was no significant difference in risk of recurrence, patterns of recurrence, or disease specific survival between BMI ≥ 40 and BMI<40 patients when stratified by risk group.
Conclusions: Morbid obesity is associated with favorable prognostic factors in patients with EC. When stratified by risk group, clinical and pathologic prognostic factors appeared to be equivalent among patients with BMI <40 and those who are morbidly obese. Morbidly obese patients are less likely to undergo lymphadenectomy regardless of risk group. However, this does not appear to impact risk of recurrence or disease specific survival. Further evaluation of long term outcomes in this group of patients is warranted.

doi:10.1016/j.ygyno.2019.03.214

Poster #25
Multiple concurrent malignancies commonly seen in Immunocompetent Human Immunodeficiency Virus-infected women

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Objectives: To determine optimal surveillance strategies for Human Immunodeficiency Virus (HIV)-infected women with Human Papilloma Virus (HPV)-associated invasive and in situ malignancies.
Methods: All HIV-infected women diagnosed with an HPV-associated malignancy between 2011-2016 were identified and followed as part of an ongoing quality improvement project. The following data were collected: demographics, HIV treatment and response, malignancy treatment and response, and mortality. The data were summarized and compared using standard statistical tests.
Results: 17 HIV-infected women were identified with 2 or more HPV-related malignancy. The median age at time of diagnosis of initial malignancy was 31 years. 94% of the patients studied were African American. Invasive malignancies included cervix (9), vulva (7), anal (4), vagina (3), urethra/bladder (2), and oropharyngeal (3). In situ lesions included cervix (4), vulva (3), and oropharyngeal (1). Only 2 of the 17 patients had CD4 counts of less than 200 at time of initial diagnosis. Five of the 17 patients died, of whom all had a CD4 count