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.

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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.

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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%