

patients ($p=0.047$). Similarly 22.2% of MMR-DM (6/27) and MMR-I (16/72) groups recurred at advanced stages (III/IV) ($p=1.0$). Median time to recurrence was 17.5 months for MMR-DM (IQR 9.6,25.29) vs. 22.7 months for MMR-I (IQR 16.6, 29.6). RFS was significantly lower for MMR-DM vs.MMR-I ($p=0.01$). There was no significant difference in OS between MMR-I and MMR-DM. There was an observed difference in the incidence of locoregional or distant recurrence between MMR-I tumors vs.MMR-DM tumors, with proportionately more distant recurrences in the MMR-I group (30% (9/30) vs. 50% (9/18) locoregional, and 70% (21/30) vs. 50% (9/18) distant recurrences).

Conclusions: ECs with MLH-1 hypermethylation are associated with known adverse prognostic factors including older age, higher grade, LVSI, and myometrial invasion >50%. These tumors have a higher rate of recurrence overall (including those with early stage disease) and a significantly lower RFS versus sporadic EC. MMR-DM status appears to be an important prognostic factor to consider in patient counseling and treatment decision making.

doi:10.1016/j.ygyno.2019.03.181

Abstract #27

The growing burden of endometrial cancer: A major racial disparity affecting hispanic women

E. Kost^a, N. Kirma^b, T. Huang^b, L. Chun-Lin^b. ^aDepartment of Obstetrics and Gynecology, Division of Gynecologic Oncology, University of Texas Health Science Center at San Antonio, TX. ^bDepartment of Molecular Medicine, University of Texas Health Science Center at San Antonio, TX

Objectives: Hispanics represent the largest and fastest growing ethnic minority group in the U.S. South Texas has a large Hispanic “minority” population which raises the concern for poorer health outcomes. We sought to compare the age-adjusted incidence rates and annual percent changes (APCs) of endometrial cancer in four geographically distinct Hispanic populations.

Methods: We used data from the U.S. SEER Program and the Texas Cancer Registry to calculate annual age-adjusted endometrial cancer incidence rates and APCs for Hispanics and non-Hispanic whites (NHW) in the U.S., Texas, South Texas, and Bexar County (San Antonio) between 2000 and 2014. APCs were derived using weighted least squares point-estimation; trends were tested for statistical significance using SEER*Stat.

Results: For the time period 2000 to 2014 the age-adjusted endometrial cancer incidence rates per 100,000 for NHW versus Hispanics were 23.9 versus 17.7 for SEER, 17.62 versus 16.87 for Texas, 19.0 versus 18.16 for South Texas, and 20.95 versus 21.01 for Bexar County. The APCs for NHW versus Hispanics were 0.8 versus 2.0 for SEER, 0.79 versus 1.79 for Texas, 2.01 versus 2.23 for South Texas, and 2.29 versus 2.39 for Bexar County. The APCs were the highest for the Hispanics under age 50; 2.5 for SEER, 3.5 for Texas, 4.1 for South Texas, and 4.1 for San Antonio. The APCs were lower for Hispanics over age 50; 1.9 for SEER, 1.2 for Texas, 1.5 for South Texas, and 1.7 for Bexar County.

Conclusions: Endometrial cancer is typically thought to be a cancer of postmenopausal Caucasian women. However in Texas, particularly in South Texas and Bear County, we found the incidence rates to be equal or higher in Hispanics than NHW. From 2000 to 2014 the incidence of endometrial cancer increased in both Hispanics and NHWs in the 4 populations, but more so in Hispanics. Compared to the SEER population, the incidence of endometrial cancer in Hispanics increased as one moved from Texas as a whole, to South Texas, to Bexar County. The most significant increase in endometrial cancer incidence was seen in the younger Hispanic patients from 2000 to 2010 in all 4 populations. More research needs to be focused

on the young Hispanic population to determine unique risk factors and potential interventions.

doi:10.1016/j.ygyno.2019.03.182

Abstract #28

The rate of incidental uterine malignant and premalignant lesions at supracervical hysterectomy for uterovaginal prolapse

B. Leopold, T. Kiltz, M. Borowsky. *Christiana Care Health System, Newark, DE*

Objectives: To determine the incidence of unexpected malignant or premalignant lesions at time of supracervical hysterectomy (SCH) performed for uterovaginal prolapse (UVP).

Methods: We performed a retrospective cohort study of patients who underwent a SCH with preoperative diagnosis of UVP at a single academic hospital between January 1, 2009 and December 31, 2016. Diagnosis was based on the attending surgeon’s primary indication for surgery. Women were excluded if they had another indication. Demographic information and the incidence of unexpected malignant and premalignant lesions was determined.

Results: From 2009- 2016, 7,883 hysterectomies were performed at our institution. Of those, 281 SCH were performed after a preoperative diagnosis of UVP. Twenty-three or 8.2%, had pre-operative uterine sampling within one year prior to the procedure. None of these patients had a malignant or premalignant finding on final pathology. Demographic and surgical data is presented in Table 1. Overall, three SCH patients, or 1.06%, were found to have an unexpected malignant or premalignant findings on final pathology. Two patients were diagnosed with endometrial cancer (both stage 1A, grade 1) and one patient had complex hyperplasia with atypia. One patient underwent subsequent trachelectomy and one patient had close surveillance after opting not to have radiation therapy. Removing patients with benign preoperative sampling, the rate of unexpected findings was 1.16%. There were no demographic characteristics that increased the risk of finding a malignant or premalignant condition on final pathologic diagnosis, which was likely due to the small number of cases.

Conclusions: To our knowledge, this is the first large study examining the risk of underlying malignant and premalignant lesions in women who have a SCH for UVP. Women who are having routine SCH for UVP should be counseled that the rate of incidental uterine malignant and premalignant lesions is approximately 1%.

doi:10.1016/j.ygyno.2019.03.183

Abstract #29

Referral to a weight loss specialist is associated with long-term weight control in endometrial cancer survivors: Long-term follow-up of a prospective cohort study

E. Connor^a, K. Maurer^b, K. Cooper^a, P. Schauer^a, P. Rose^a, C. Michener^a, A. Jernigan^c. ^aCleveland Clinic, Cleveland, OH. ^bUniversity of Utah Health and Huntsman Cancer Center, Salt Lake City, UT. ^cLouisiana State University Health Sciences Center, New Orleans, LA

Objectives: To prospectively evaluate the long-term effects of medical and surgical weight loss referral of endometrial cancer survivors.

Methods: From December 2013 to May 2015, women ages 18-65 years with complex atypical hyperplasia or stage I-II endometrioid adenocarcinoma and a body mass index (BMI) ≥ 30 kg/m² were prospectively enrolled at 3 hospitals in an academic health system. Exclusion criteria included non-endometrioid histology, poorly

controlled medical or psychiatric conditions precluding weight loss intervention, or a second active malignancy. Women with BMI ≥ 30 kg/m² were offered referral for medical management and women with obesity-related comorbidities or BMI ≥ 40 kg/m² were also offered surgical consultation. A historic control group was identified during the enrollment period. All patients were followed for a maximum of 2 years. Descriptive statistics and univariate analyses were performed using statistical software.

Results: One hundred and fifty-three women were enrolled in the intervention group and compared to a control group of 104 women. Mean initial age was 55 years (SD 8), mean initial BMI was 42 kg/m² (SD 9), with no significant differences between groups. Median follow-up time was 18 months (IQR 12–24). One hundred forty-five women (95%) were offered referral for medical management and 63 (43%) accepted, of which 23 (37%) attended the appointment and 18 (29%) initiated a weight loss plan. One hundred and two women (67%) met criteria for surgical management and 45 (44%) accepted, of which 6 (13%) attended the appointment and 4 (9%) underwent bariatric surgery. Initial BMI was higher for women accepting versus declining referral (44.4 vs. 41.4 kg/m², $P=0.048$). Of all 257 women, 74 demonstrated BMI loss >1 kg/m² (29%), 107 (42%) remained stable within 1 kg/m², and 76 (30%) demonstrated BMI gain >1 kg/m². Both women who accepted or declined the referral in the intervention cohort demonstrated BMI loss compared to the control group which demonstrated BMI gain (-0.82 vs. -0.50 vs. $+0.50$ kg/m², $P=0.041$). Women in the intervention group were more likely to lose weight (54 vs. 39%, $P=0.016$). Women in the control group were more likely to experience weight gain (59 vs. 41%, $P=0.005$), and were almost twice as likely to gain >1 kg/m² (40 vs. 22%, $P=0.001$).

Conclusions: Obese endometrial cancer survivors should be referred for medical and surgical obesity management programs, as referral is associated with better long-term weight control.

doi:10.1016/j.ygyno.2019.03.184

Abstract #30

Drug efficacy testing of targeted therapies in endometrial cancer organoids is partially predicted by cancer gene mutation data (Correct)

H. Chen^a, A. Shepherd-Littlejohn^a, E. Girda^b, G. Polanco-Echeverry^c, R. Sahasrabudhe^c, T. Toal^c, L. Carvajal-Carmona^c, G. Leiserowitz^a, L. Smith^a. ^aDivision of Gynecologic Oncology, Department of Obstetrics and Gynecology, University of California Davis, Sacramento, CA. ^bRutgers Cancer Institute of New Jersey, New Brunswick, NJ. ^cDepartment of Biochemistry and Molecular Medicine, Genome Center, School of Medicine, University of California Davis

Objectives: To determine the efficacy of targeted therapies based on genomic profiling of endometrial cancer patient derived organoids (PDO).

Methods: Genomic analysis was performed on previously derived endometrial cancer PDO lines. The panel consisted of 761 genes selected for their known or suspected associations with cancer. Drugs targeting the mutated genes were identified through an online search using clinicaltrials.gov. If no FDA-approved drugs were identified, agents were chosen using preclinical data. The following drugs were utilized in this study: Palbociclib, Everolimus, LY3039478, Mocetinostat, Trametinib, Deltarasin, LY294002, AZD5363, MK-1775, Sorafenib, PRI-724, Olaparib, Ceritinib, Critozinib, GSK126, Oxaliplatin, Paclitaxel, and VS-5584. A single concentration of each drug was selected to reflect plasma concentrations achieved in therapeutic trials. Cryopreserved, accutase-treated organoids were thawed, suspended in serum-free media, and plated on Day 0. On Day 1,

targeted drugs and control media were added to each well. On Day 6, viability assays were performed using CellTiter Glo reagent and read using a Promega luminometer. The average percent inhibition for each drug was calculated and considered clinically meaningful if it was greater than 50%. Statistical analysis was performed using Student's t-test. A two-tailed p-value less than 0.05 was considered significant.

Results: Eleven previously derived endometrial cancer PDO cultures underwent genomic testing. Genomic analysis revealed an average of 43 non-synonymous mutations per PDO culture, ranging from 13 to 320 mutations. Three of these cultures (EN-734, -768, and -793) were serially passaged and underwent targeted therapy assays based on their genomic profile. For all three organoid lines, expected inhibition based on specific target mutations was 50% (15/30). Cases where the presence of mutations perfectly predicted expected inhibition were noted with LY294002, AZD5363, PRI-724, and Olaparib. There were also cases where there was unexpected resistance despite the presence of gene mutations, such as for Everolimus and VS-5584. Additionally, 44% (8/18) of agents in the drug panel produced inhibition despite the absence of mutations (Table 1).

Conclusions: These results suggest that the mutational landscape may successfully predict sensitivity to certain targeted agents but cases of unanticipated resistance or sensitivity are not uncommon. A pre-treatment empirical ex vivo assessment of a drug's anti-tumor activity using a PDO model could be helpful in the selection of the most active agents for each patient. Further research reflecting current treatment standards such as combination chemotherapy will be needed to more accurately reflect what occurs in the clinical setting.

doi:10.1016/j.ygyno.2019.03.185

Abstract #31

Comparison of effectiveness of two strategies to identify Lynch Syndrome in women with endometrial cancer

C. Salyer^a, S. Lentz^b, M. Dontsi^c, M.A. Armstrong^c, A. Butt^c, E. Hoodfar^d, M. Alvarado^e, E. Landers^e, M. Avila^e, N. Nguyen^a, C. Bethan Powell^f. ^aKaiser Permanente OBGYN Residency Program, Oakland, CA. ^bKaiser Permanente Division of Gynecologic Oncology, Los Angeles, CA. ^cKaiser Permanente Division of Research Biostatistical Consulting Unit, Oakland, CA. ^dKaiser Permanente Department of Genetics, San Francisco, CA. ^eKaiser Permanente Southern California Residency Program, Los Angeles, CA. ^fKaiser Permanente Division of Gynecologic Oncology, San Francisco, CA

Objectives: The purpose of this study is to estimate the differences in Lynch Syndrome (LS) case identification between two strategies of IHC testing, universal immunohistochemistry (IHC) testing for all endometrial cancers (EC) and referral-based testing for EC patients under age 60.

Methods: This is a retrospective study of all EC cases from two regions of a large California healthcare system with differing LS screening protocols. There were 1,399 cases from Northern California (NC) over 19 months, where IHC testing is physician ordered (non-automated) for all cases of EC under age 60 and for those age 60 and older with family or tumor features suggestive of LS. There were 646 cases from Southern California (SC) region over 14 months, where IHC is universal and automated for all cases of EC. The following variables were compared between the two institutions for all EC cases: demographics, tumor characteristics, IHC results, and personal and family history of LS cancers. Among all abnormal IHC cases, data was collected for referral to genetics and genetic testing.