Penn Medicine

FY20 27491 4.20

Penn Medicine

DEPARTMENT OF OBSTETRICS & GYNECOLOGY

17th Annual RESIDENT RESEARCH DAY & JOHN ROCK LECTURE

MAY 29, 2020

Welcome

17TH ANNUAL RESIDENT RESEARCH DAY & JOHN ROCK LECTURE

Welcome to the 17th Annual John Rock Lecture and Department of Obstetrics and Gynecology Resident Research Day. Resident Research Day is an opportunity for our trainees to present their research projects to their colleagues with the goal of challenging current thinking to improve women's health care. We believe this experience will inspire our young physicians to explore basic science, translational and clinical research opportunities in their future careers in order to benefit patients and advance our specialty.

We are honored to welcome as our speaker Dr. Courtney A. Schreiber, MD, MPH, Chief of the Division of Family Planning at Penn Medicine.

A special thank you to the Women's Health Clinical Research Center, The Maternal and Child Health Research Center, The Penn Ovarian Cancer Research Center and The Center for Research on Reproduction and Women's Health.

We thank you all for your virtual attendance today and hope you will join us in congratulating all of today's participants on their achievements.

RESEARCH LEADERSHIP TEAM

Samuel Parry, MD
Interim Chair, Department of Obstetrics and Gynecology

Catherine R. Salva, MD
Director, Residency Program

Anuja Dokras, MD, PhD
Director, Resident Research Program

JOHN ROCK LECTURER

Courtney A. Schreiber, MD, MPH

Associate Professor of Obstetrics and Gynecology
at the Hospital of the University of Pennsylvania
Chief, Division of Family Planning

Courtney A. Schreiber MD, MPH is an Associate Professor of Obstetrics and Gynecology and Chief of Family Planning at the Perelman School of Medicine, University of Pennsylvania. A native Philadelphian, she completed her residency training at the Hospital of the University of Pennsylvania and Family Planning Fellowship at the University of Pittsburg Magee Womens Hospital. Dr. Schreiber serves as Director of PEACE, the Pregnancy Early Access Center at Penn. At PEACE, we integrate clinical care, clinical research, and teaching to advance patient-centered care for women needing family planning services and management of early pregnancy complications. Dr. Schreiber's career goal is to improve the reproductive health and lives of all people, with a focus on underserved populations. To this end, she has utilized translational, clinical, and health-services research methodologies to improve the patient experience and clinical outcomes. She has conducted more than 50 studies in reproductive health resulting in more than 80 peer-reviewed publications. Her NIH, foundation, and industry-funded clinical research has enabled sustained success in the areas of the prevention of unintended pregnancy among women with medical and social co-morbidities, as well as the optimization of pregnancy loss treatments, and related early pregnancy complication care. The first niche was developed as a junior faculty member at the University of Pennsylvania as Building Interdisciplinary Research Careers in Women's Health (BIRWCH K12-HD-043459) scholar; and the second is supported by her R01 (R01-HD-071920). Her research activities complement and are seamlessly integrated with academic clinical service. Additionally, Dr. Schreiber serves as Program Director of the Fellowship in Family Planning at Penn, and Research Director of the Penn BIRCWH K-12 and is most inspired when mentoring future clinician-scientists in the science of reproduction and family planning. Dr. Schreiber is Chair of the ABOG Division of Complex Family Planning.

AGENDA

7:30 - 7:35 am

Welcome Remarks
by **Samuel Parry, MD**

7:35 - 7:40 am

Introduction
by **Anuja Dokras, MD, PhD**

7:40 - 10:00 am

RESIDENT PRESENTATIONS

10:15 - 11:15 am

JOHN ROCK LECTURE

Academic Medicine as an Instrument of Change
by **Courtney A. Schreiber, MD, MPH**

11:15 - 12:30 pm

RESIDENT (PGY2) RESEARCH PROPOSALS

Metabolic and Clinical Predictors of Fibroid Recurrence
by **Antoinette Allen, MD**

Evaluating and Optimizing Gardasil Uptake in the University Pennsylvania Health System
by **Maureen Byrne, MD, MSCR**

Association of payer status with postpartum contraceptive method in women with unintended pregnancy
by **Arina Chesnokova, MD, MPH**

Obstetrical outcomes of PUL based on HCG level
by **Olanrewaju Dawodu, MD**

Postpartum Polaroid Project
by **Abigail Garbarino, MD**

Programmed Versus Natural Cycle Frozen Embryo Transfers (FETs): A Retrospective Chart Review Looking at Pregnancy and Birth Outcomes Stratified by Race and Ethnicity
by **Quetrell Heyward, MD, MBA**

Outcomes of Transdermal Estrogen Therapy in Girls with Turner's Syndrome
by **Aimee Morrison, MD**

IMPACT OF MEDICAID EXPANSION ON NON-ELDERLY WOMEN WITH GYNECOLOGIC CANCER: A DIFFERENCE-IN-DIFFERENCE ANALYSIS

Authors Benjamin Albright, MD, MS, Dimitrios Nasioudis, MD, Stuart Craig, BS, Haley Moss, MD, MB, Nawar Latif, MD, MPH, Emily Ko, MD, MSCR, Ashley Haggerty, MD, MSCE

Background The Affordable Care Act offered states the option to expand Medicaid enrollment eligibility criteria, with >90% funded by the Federal Government, as a means of improving timely and affordable access to care for low-income patients not already covered by Medicare. Washington DC and 31 states expanded Medicaid between January 2010 and July 2016, while 19 states chose not to expand. This variable uptake of expansion created a natural experiment, by which we sought to use quasi-experimental methods to assess the impact of Medicaid expansion on non-elderly women with gynecologic cancer.

Methods The National Cancer Database (NCDB) includes ~70% of new cancer diagnoses in the US. From NCDB, we selected for women ages 40-64 with invasive cancers of the uterus, ovary/fallopian tube, cervix, vagina, and vulva diagnosed 2008-2016. Using a marker for state Medicaid expansion status (suppressed for women with age<40), we created difference-in-difference models to assess the impact of Medicaid expansion on outcomes of access to, and timeliness of treatment. The assumption of parallel trends was assessed visually with time plots.

Results Our sample included 335,063 women. Among this cohort, 121,449 were from non-expansion states, and 213,614 from expansion states, with 79,886 post-treatment cases diagnosed after expansion took full effect in expansion states. Groups had minor differences in demographics, but parallel trends were grossly satisfied. In a basic difference-in-difference model, January 2014 Medicaid expansion was associated with significant increases in insurance at diagnosis, treatment at academic facility, and treatment within 30 days of diagnosis. In an adjusted model including all states, accounting for variable Medicaid expansion implementation time, and controlling for patient and zip code of residence characteristics, there was a significant treatment effect of Medicaid expansion for reduction in uninsurance at diagnosis (-2.00%; 95%CI -2.3- -1.7; p<0.001), and increases in early stage diagnosis (0.80%; 95%CI 0.2-1.4; p=0.02), treatment at academic facility (0.83%; 95%CI 0.1-1.5; p=0.02), treatment within 30 days (1.62%; 95%CI 1.0-2.3; p<0.001), and surgery within 30 days (1.54%; 95%CI 0.8-2.3; p<0.001). Particularly large gains were estimated for women living in low-income zip codes, Hispanic women, and women with cervical cancer.

Conclusion Medicaid expansion was associated with gains in access to and timeliness of treatment for non-elderly women with gynecologic cancer. Implementation of Medicaid expansion in non-expansion states could greatly benefit our patients. We recommend continued advocacy for Medicaid expansion in ongoing policy debates.

ANDROGEN HORMONES AND SEXUAL FUNCTION AMONG CANCER SURVIVORS: SHORT AND LONG-TERM TREATMENT EFFECTS

Authors Leigh Ann Humphries, MD, Katherine Cameron MD MBE, Maureen Prewitt RN, Clarisa Gracia MD MSCE

Background Sexual function is a critical component of quality of life for many cancer survivors. Given the importance of androgen production in sexual health, we sought to characterize circulating androgen levels before and after cancer therapy as well as sexual function.

Methods Reproductive age female patients (15-39 years) with a cancer diagnosis and controls completed sexual health questionnaires and tests of serum androgens (free testosterone, DHEAS) and ovarian reserve (FSH, AMH, AFC). This study included a) women with a new cancer diagnosis, assessed pre-treatment and every 3 months post-treatment to examine short-term effects (N=117), and b) cancer survivors ≥1 year from the end of therapy with no evidence of disease to examine long-term effects (N=120). These participants were compared to similar-aged controls (N=100) and also late-reproductive aged controls (N=63) using linear regression adjusted for age and BMI.

Results In adjusted models, women with a new cancer diagnosis (median age 27) had significantly lower testosterone and DHEAS levels than similar-aged controls, even prior to the start of therapy (median testosterone 0.35 ng/mL vs 0.49 ng/mL, p<0.01; DHEAS 0.79 µg/mL vs 1.3 µg/mL, p<0.01); with no difference in AMH levels pre-treatment. After cancer therapy, testosterone levels were further suppressed, with a median within-person decrease of 62% (p<0.01) at 2 months and 39% (p<0.01) at 6 months after treatment end. By 12 months after treatment, testosterone levels among cancer patients exhibited some recovery, at a rate of 6% per month (p<0.01). Reported sexual dysfunction before and after treatment was prevalent regardless of testosterone or DHEAS levels, with 41% of sexually active participants reporting decreased libido at their pre-treatment visit and 42% at 6 months post-treatment. In long-term survivors, women (median age 24) remote from therapy (median 8.2 years) had significantly lower testosterone and DHEAS levels compared to similar-aged controls (p=0.01 and p<0.01, respectively), though higher than late-reproductive age controls (median age 47), (p=0.02 for testosterone, p<0.01 for DHEAS). However, sexual dysfunction did not differ from controls (20% in survivors, 16% in similar-aged controls, 17% in late reproductive-aged controls, p=0.83), and symptom prevalence was not associated with androgen levels.

Conclusion Prior to chemotherapy, women with a new cancer diagnosis have lower androgen levels than controls, possibly due to pre-existing suppression of the hypothalamic pituitary ovarian axis. Androgen levels drop further after therapy. While there is some recovery, long-term levels remain lower than controls. Sexual dysfunction is prevalent immediately post therapy; yet, in long-term survivors, androgen levels do not correlate with self-reported sexual dysfunction.

RECEIPT OF CHEMOTHERAPY AT THE END OF LIFE BY RACE: A STUDY OF ADVANCED UTERINE CANCER

Authors Denise Johnson, MD, Colleen Brensinger, MS, Lilie Lin, MD, Mark Morgan, MD, Ashley Haggerty, MD, MSCE, Nawar Latif, MD, MPH, Robert Giuntoli II, MD and Emily Ko, MD, MSCR

Background There is growing evidence of racial disparities in end of life care in gynecologic oncology. Quality care, as defined by the National Quality Forum, includes avoidance of aggressive treatment at the end of life. This study assesses the relationship between race and receipt of chemotherapy in the last 14 days of life in patients with advanced stage uterine cancer.

Methods The Surveillance, Epidemiology and End Results (SEER) – Medicare database was used to identify women >65 years old with stage III or IV uterine cancer with a date of death between 2000 and 2014. Patients were required to have one primary tumor, survived beyond 30 days after diagnosis, and had a hysterectomy if stage III. Univariable and multivariable analyses and tests for interactions were used to assess differences in receipt of chemotherapy within 14 days of death across self-identified race categories.

Results We identified 4633 patients, including 76% (3523) white, 16.7% (773) black, 2.5% (115) Asian, 2.1% (99) Hispanic and 2.7% (123) other/unknown. Black, Hispanic and Asian women were more likely than white or other/unknown women to have non-endometrioid tumors (66.8%, 69.6%, 69.7% vs. 55.3%, 59.3%, P<0.001) and stage IV cancer (63.9%, 60.6%, 63.5% vs 54.1%, 56.9%, P<0.001). Black and Hispanic women were also more likely than white, Asian or other/unknown women to have a Charlson score ≥3 (10.7%, 11.1% vs. 6.5%, 4.3%, 4.9%, P<0.001).
The rates of receipt of chemotherapy within 14 days of death by race were: 4.0%(white), 4.4%(black), 4.3%(Asian), 1% (Hispanic) and 4.1% (other/unknown), (P = 0.6212). Receipt of chemotherapy did not differ by race in analyses adjusted for region, histology and nodal dissection, and no effect modification was similarly identified.

Conclusion There was no statistically significant difference in the receipt of chemotherapy at the end of life across race categories. While the rates of chemotherapy among white, black, Asian and other/unknown patients was 4.0- 4.4%, the rate for Hispanic patients was only 1%, which may signal a trend that warrants further investigation.

POSTPARTUM WEIGHT RETENTION IN WOMEN WITH PCOS AND CONTROLS

Authors Iris Lee, MD, Snigdha Alur-Gupta, MD MSCE, Robert Gallop, PhD, Anuja Dokras, MD PhD

Background Polycystic ovary syndrome (PCOS) is the most common endocrine disorder among women of reproductive age and is associated with obesity. In the general population, significant weight retention following pregnancy predicts long-term obesity. The association between postpartum weight retention (PPWR) and PCOS has not been examined previously, and this study aims to assess whether women with PCOS are at higher risk of significant PPWR.

Methods Women who delivered a live, full-term singleton from January 2014-2019 and had a prepregnancy weight, peak pregnancy weight, and at least one weight recorded within a year of their most recent delivery were included. Weights were categorized into four time points: 6weeks, 3 months, 6 months, and 12 months postpartum. ICD codes were used to identify the PCOS cohort through the hospital database. Covariates included in univariate and multivariate models to assess the association between high weight retention (five kilograms or more above prepregnancy weight) and PCOS at the six-week time point included age, parity, race, and prepregnancy BMI; for the three-month time point, age and prepregnancy BMI were included.

Results A total of 7692 women were included (5.6% with PCOS). Women with PCOS had higher prepregnancy BMI (26.4 vs. 24.7 kg/m2, p<0.001) as well as higher prevalence of gestational diabetes (10.72% versus 6.32%, p<0.0.001) and hypertension (13.02% versus 8.66%, p=0.002) compared to controls. At each of the four postpartum time points, women with PCOS had a higher BMI than controls. However, total weight gain during pregnancy was lower in the PCOS group (12.50 vs. 13.29 kg, p=0.015). The percentage of women who surpassed Institute of Medicine (IOM) guidelines for pregnancy weight gain based on BMI was similar between groups (43.46% PCOS versus 46.85% controls, p=0.158). At six weeks postpartum, the amount of weight retained by women with PCOS (2.95 kg, -0.77-6.07 kg) was lower than controls (3.96 kg, 0.76-7.32kg). The likelihood of retaining five or more kilograms at this time was lower in the PCOS group (32.91% versus 40.95%, aOR 0.79, 95% CI 0.63-0.99). The proportion of high weight retainers was not significantly different between the PCOS group and controls at later time points, although approximately 20% of the cohort had an increase in BMI category at the end of 12 months.

Conclusion Women with PCOS were more likely than controls to be obese prior to pregnancy but had less weight gain in pregnancy. While this finding is reassuring, this study underscores the need for comprehensive counseling for weight management in the preconception, pregnant, and postpartum periods in all women.

EFFECT OF BODY MASS INDEX ON POST-PLACENTAL INTRAUTERINE DEVICE EXPULSION

Authors Jaclyn Muñoz, MD, Ariel Levy, MD, Malia Voytik, Maria Keating, MD

Background There is some evidence that body mass index (BMI) may have an effect on intrauterine device (IUD) expulsion in non-pregnant women but no studies examining the effect of BMI on post-placental IUD outcomes. The objective of this study was to evaluate the effect of BMI on rate of post-placental IUD expulsion within 6 months of placement. Our hypothesis was that expulsion would occur more frequently with increasing BMI.

Methods This was a retrospective cohort study of patients who received a post-placental IUD from June 2017 to March 2019 at a single tertiary care academic medical center. Outcomes for women with a BMI of less than 30 were compared to women with a BMI of greater than or equal to 30. The primary outcome was post-placental IUD expulsion rate within 6 months of placement. Secondary outcomes included expulsion rate in primiparous women and a post-hoc subgroup analysis assessed expulsion rate by BMI category. Demographics and labor outcomes were analyzed using standard statistical tests. Multivariable logistic regression was done for the primary and secondary outcomes.

Results A total of 114 women were included in the study: 57 in the BMI less than 30 group and 57 in the BMI greater than or equal to 30 group. The adjusted odds of IUD expulsion trended higher in the obese group (aOR 3.27, 95% CI 0.95-11.18). On subgroup analysis, expulsion rates were significantly higher for women with a BMI greater than or equal to 40 when compared to normal BMI (aOR 1.97, 95% CI 1.14-3.42).

Conclusion Obese women may have a greater risk of post-placental IUD expulsion, especially when BMI is equal to or greater than 40.

SEVERE PRETERM PREECLAMPSIA: AN EXAMINATION OF OUTCOMES BY RACE

Authors Jessica Peterson, MD, Kirsten Sandgren, BA, MSW, Lisa D. Levine, MD, MSCE

Background Preeclampsia complicates 5-8% of all pregnancies. Previous studies have examined the maternal morbidity and mortality associated with preeclampsia as well as expectant management of preterm severe preeclampsia. However, these studies either did not comment on outcomes by race or were primarily made up of non-black participants.

Objective To determine if maternal morbidity associated with the expectant management of preterm severe preeclampsia (SPEC) varied by race.

Methods We performed a retrospective cohort study of women with SPEC diagnosed at <34 weeks between 2008 and 2017 at our institution. SPEC was defined by current ACOG guidelines. The primary outcome was a maternal morbidity composite defined as ± 1 of the following: HELLP, eclampsia, pulmonary edema, severe renal dysfunction, abruption, maternal ICU admission, venous thromboembolism, blood transfusion, hysterectomy, stroke or death. Secondary outcomes included a composite of neonatal morbidity. Outcomes were compared between self-reported black and non-black women.

Results 275 women were included, 91(33%) were non-black and 184 (67%) were black. Approximately 74% (n=203) underwent expectant management with no difference by race (75.8% non-black vs. 72.8% of black women P=0.6). When examining maternal morbidity, 62 women (30.5%) of those expectantly managed developed the composite maternal morbidity outcome with no difference by race (27.5% of non-black vs 32.1% of black women P=0.5) even when adjusting for confounders including maternal age, BMI, and parity (aOR 1.02, 95% CI 0.97-1.35). The median time from diagnosis to delivery (latency time) was 3 days with no difference between the two groups (p=0.9) and no difference in neonatal morbidity (60.9% vs. 53%, p= 0.3).

Conclusion Within our population, there were no differences in maternal outcomes between black and non-black women undergoing expectant management of SPEC. More research is needed to determine if the known disparities in maternal morbidity between races are due to factors beyond the antepartum management of SPEC.

WITHIN SUBJECT COMPARISON OF VAGINAL ANATOMY BEFORE AND AFTER HYSTERECTOMY

Authors Elizabeth Rubin, MD, Stephanie Sansone, MD, Sarah Thomas, MD, Daniel Lee, MD, Evan Seigelman, MD, Lily Arya, MD, MS

Background The size and structure of the vagina has implications for surgery and intravaginal devices, medications and lubricants. Surgeries that alter the vaginal axis have been found to increase the risk for subsequent compensatory prolapse, however, little research exists evaluating the structure of the post-hysterectomy vagina. Our aim was to evaluate vaginal measurements on magnetic resonance imaging (MRI) in individuals before and after hysterectomy with the hypothesis that these measurements would differ.

Methods This retrospective cohort study queried a single site radiology database for eligible subjects who had undergone pelvic MRIs before and after hysterectomy. Exclusion criteria included distorted pelvic anatomy, such as enlarged uterus, prolapse, or pelvic irradiation. Vaginal length, axes, angles and posterior cul-de-sac were measured on midline sagittal T2-weighted images by a radiologist blinded to the study hypothesis. The vagina was divided into three regions: lower, middle and upper. Vaginal axis was defined as the angle between a region and the pelvic inclination correction system (PICS), a line 34± clockwise from sacro-coccygeal inferior pubic point (SCIPP). Vaginal angles were defined as the angle between two regions. Measurements before and after hysterectomy were compared using paired t-test.

Results Of 241 records reviewed, 26 women met the eligibility criteria. Median (range) age before hysterectomy was 39 years (27, 78). Median interval between the pre- and post-hysterectomy scans was 2 years. After hysterectomy the mean total vaginal length and depth of posterior cul-de-sac decreased compared with prior to surgery (70.5 mm ± 2.4 vs 86.0 mm ± 2.7 P<0.001 and 13.5 mm ± 3.2 vs 24.2 mm ± 2.4, P<0.001, respectively). Upper vaginal axis was significantly more obtuse after hysterectomy (94± ± 11 vs 37± ±6, p<0.001). Upper-middle and upper-lower vaginal angles were more acute after hysterectomy (91.5±± 5 vs 140± ± 5, P<0.001 and 13.5± ± 3.2 vs 24.2± ± 2.4, p<0.001, respectively). No significant differences were noted in lower vaginal measurements. In the 5 subjects who underwent supracervical hysterectomy, the calculated changes in the upper-middle angle, upper-lower angle and upper vaginal axis were less pronounced than those with total hysterectomy (-9± vs -76± p=0.003, +9± vs -64± p=0.003, and +18± vs +91± p=0.04, respectively).

Conclusion The anatomy of the upper vagina, where the cervico-vaginal junction is replaced with the vaginal cuff, is significantly altered after hysterectomy. The anatomy of the lower vagina is preserved.

RELATIONSHIP BETWEEN ANTERIOR VAGINAL WALL PROLAPSE AND DETRUSOR CONTRACTILITY

Authors Stephanie Sansone, MD, Hannah Ryles, MD, Heidi Harvie, MD, MSCE, Lily Arya, MD

Background Little is known about how anterior vaginal wall prolapse (POP) affects bladder contractility. Though voiding symptoms in women with POP are often attributed to bladder outlet obstruction (BOO), recent studies suggest that POP may be associated with detrusor underactivity (DU). Our primary aim is to determine the relationship between POP severity and detrusor contractility. Our secondary aim is to determine the rate of BOO and DU in women with POP.

Methods We conducted a retrospective cohort study of women who underwent urodynamics testing over a 23-month period. Women with neurologic illness, prior pelvic radiation, or recent surgery were excluded. Anterior POP was assessed by POP-Q point Ba, and detrusor contractility was measured by pressure flow study (PFS). We defined DU as PdetQmax (detrusor pressure at maximum flow) < 20 cmH2O and Qmax (maximum flow rate) < 15 mL/s, BOO as PdetQmax ≥ 40 cmH O and Qmax < 12 mL/s, and normal PFS as PdetQmax ≥ 20 cmH2O and Qmax ≥ 20 mL/s. Data were compared between women with mild (Ba < -1), moderate (-1 ≤ Ba ≤ +1), or severe (Ba > +1) anterior POP.women.

Results Of 330 women included in this analysis, 183 (55%) had mild, 64 (19%) had moderate, and 83 (26%) had advanced anterior POP. The median (range) age was 58 (23-91) years and BMI was 28 (17-52) kg/m2. Women with advanced POP were significantly older and had higher parity (p < 0.001). Worsening POP severity was significantly associated with greater splinting to urinate (p < 0.001), higher postvoid residual volume (p = 0.03) and decreased average flow rate (p = 0.02). PdetQmax and Qmax were not associated with POP severity. The overall rate of DU was 13% and the overall rate of BOO was 9%, which did not differ between groups. The rate of DU was highest (20%) and the rate of BOO was lowest (5%) in the moderate POP group, with 23% of women in this group reporting incomplete emptying, 14% reporting hesitancy, and 8% reporting splinting to urinate.

Conclusion Detrusor contractility was not associated with the severity of POP. Worsening prolapse is associated with obstructive symptoms even in the absence of urodynamic evidence of BOO. Underactive bladder may contribute to symptoms in women with moderate anterior vaginal wall prolapse.

RESIDENT PUBLICATIONS AY2019-20

Albright BB, Shorter JM, Mastroyannis SA, Ko EM, Schreiber CA, Sonalkar S.
Gestational Trophoblastic Neoplasia After Human Chorionic Gonadotropin Normalization Following Molar Pregnancy: A Systematic Review and Meta-analysis. Obstet Gynecol. 135(1). Jan 2020.

Alur-Gupta S, Chemerinski A, Liu C, Lipson J, Allison K, Sammel MD, Dokras A.
Body-image distress in increased in women with polycystic ovary syndrome and mediates depression and anxiety. Fertil Steril. 2019 Nov; 112(5):930-938.

Burwick RM, Togioka BM, Speranza RJ, Gaffney JE, Roberts VHJ, Frias AE, Rincon M.
Assessment of blood-brain barrier integrity and neuroinflammation in preeclampsia. Am J Obstet Gynecol. 2019 Sep;221(3):269.

Calix RX, Loeliger KB, Burn MS, Campbell KH.
Acute Herpes Simplex Virus Hepatitis in Pregnancy. Obstet Gynecol. 2020 Feb;135(2):396-400.

Chemerinski A, Cooney L, Shah D, Butts S, Gibson-Helm M, Dokras A.
Knowledge of PCOS in physicians-in-training: identifying gaps and educational opportunities. Gynecol Endocrinol. 2020 Apr 6: 1-6.

Connolly CT, Fox NS, Hill MB, Klahr R, Rebarber A, Zafman K.
Frequency of spontaneous resolution of vasa previa with advancing gestational age. Am J Obstet Gynecol. 2019 Dec;221(6):646.e7.

Greiner KS, Speranza RJ, Rincon M, Beeraka SS, Burwick RM.
Association between insurance type and pregnancy outcomes in women diagnosed with hypertensive disorders of pregnancy. J Matern Fetal Neonatal Med. 2020 Apr: 33(8): 1427-1433.

Humphries LA, Dodge LE, Kennedy EB, Humm KC, Hacker MR, Sakkas D.
Is younger better? Donor age less than 25 does not predict more favorable outcomes after in vitro fertilization. Journal of Assisted Reproduction and Genetics. 2019 Aug;36(8):1631-1637.

Kim SW, Nasioudis D, Levine L.
Role of early amniotomy with induced labor: a systematic review of literature and meta-analysis. Am J Obstet Gynecol MFM. 2019 Nov;1(4):100052.

Lee I, Cooney LG, Saini S, Sammel MD, Allison KC, Dokras A.
Increased odds of disordered eating in polycystic ovary syndrome: a systematic review and meta-analysis. Eat Weight Disord. 2019 Oct;24(5):787-97.

Lewey J, Levine LD, Elovitz MA, Irizarry OC, Arany Z.
Importance of Early Diagnosis in Peripartum Cardiomyopathy. Hypertension. 2020 Jan;75(1):91-97.

Liu LY, Zafman KB, Fox NS.
The Association between Gestational Weight Gain in Each Trimester and Pregnancy Outcomes in Twin Pregnancies. Am J Perinatol. 2020 Jan 20.

Liu LY, Zafman KB, Fox NS.
Weight gain and pregnancy outcomes in overweight or obese women with twin gestations. J Matern Fetal Neonatal Med. 2019 Aug 4: 1-6.

McCallister CJ, Akers AY, Worlds AD, Morrison PK.
Messages about contraception and condoms in mother-adolescent dyadic conversations: Knowledge, Risks, and Effectiveness. J Pediatr Adolesc Gynecol. 2019 Aug; 32(4): 395-401.

McMinn E, Schwartz N.
Adnexal Masses in Pregnancy. Clin Obstet Gynecol. 2020 Mar 11.

Morrison A, Olezeski C, Cron J, Kallen AN.
A pilot study to assess attitudes toward future fertility and parenthood in transgender and gender expansive adolescents. Transgender Health. 2020.

Muñoz JM, Beausang J, Finley E, Wolf S.
Protocol for evaluating women with female genital mutilation seeking asylum. Int J Legal Med. 2019 Dec 4.

Nasioudis D, Sakamuri S, Ko EM, Haggerty AF, Giuntoli RL 2nd, Burger RA, Morgan MA, Latif NA.
Radical hysterectomy is not associated with a survival benefit for patients with stage II endometrial carcinoma. Gynecol Oncol. 2020 Feb 20.

Nasioudis D, Mastroyannis SA, Latif NA, Ko EM.
Trends in the surgical management of malignant ovarian germ cell tumors. Gynecol Oncol. 2020 Apr;157(1):89-93.

Nasioudis D, Frey MK, Chapman-Davis E, Caputo TA, Holcomb K.
Primary malignant ovarian carcinoid; management and outcomes. Gynecol Oncol. 2020 Apr;157(1):101-105.

Nasioudis D, Latif NA, Simpkins F, Cory L, Giuntoli RL 2nd, Haggerty AF, Morgan MA, Ko EM.
Adjuvant chemotherapy for early stage endometrioid ovarian carcinoma: An analysis of the National Cancer Data Base. Gynecol Oncol. 2020 Feb;156(2):315-319.

Nasioudis D, Bhadra M, Ko EM.
Extramammary Paget disease of the vulva: Management and prognosis. Gynecol Oncol. 2020 Apr;157(1):146-150.

Nasioudis D, Frey MK, Chapman-Davis E, Caputo TA, Holcomb K.
Outcomes of minimally invasive surgery for patients with endometrial carcinoma involving the cervix. Int J Gynecol Cancer. 2020 Apr 9.

Nasioudis D, Heyward QD, Haggerty AF, Giuntoli Ii RL, Burger RA, Morgan MA, Ko EM, Latif NA.
Surgical and oncologic outcomes of minimally invasive surgery for stage I high grade endometrial cancer. Surg Oncol. 2020 Feb 17;34:7-12.

Nasioudis D, Persaud A, Taunk NK, Latif NA.
Brain Metastases From Gynecologic Malignancies: Prevalence and Management. Am J Clin Oncol. 2020 Mar 31.

Nasioudis D, Musselman K, Gordhandas S, Chapman-Davis E, Frey MK, Caputo TA, Holcomb KM.
Disparities in the Use of Adjuvant External Beam Radiation Therapy in Node-positive Cervical Cancer Patients Following Hysterectomy. Am J Clin Oncol. 2020 Jan;43(1):43-46.

Nasioudis D, Holcomb K.
Incidence of isolated para-aortic lymph node metastasis in early stage endometrial cancer. Eur J Obstet Gynecol Reprod Biol. 2019 Nov;242:43-46.

Nasioudis D, Mastroyannis SA, Haggerty AF, Giuntoli RL 2nd, Morgan MA, Ko EM, Latif NA.
Fertility preserving surgery for high-grade epithelial ovarian carcinoma confined to the ovary. Eur J Obstet Gynecol Reprod Biol. 2020 Jan 30;248:63-70.

Nasioudis D, Albright BB, Ko EM, Haggerty AF, Giuntoli RL 2nd, Burger RA, Morgan MA, Latif NA.
Advanced stage primary mucinous ovarian carcinoma. Where do we stand? Arch Gynecol Obstet. 2020 Apr;301(4):1047-1054.

Nasioudis D, Wilson E, Mastroyannis SA, Sisti G, Haggerty AF, Ko EM, Latif NA.
Increased Risk of Breast and Uterine Cancer Among Women With Ovarian Granulosa Cell Tumors. Anticancer Res. 2019 Sep;39(9):4971-4975.

Nasioudis D, Minis E, Irani M, Kreines F, Witkin SS, Spandorfer SD.
Insulin-like growth factor-1 and soluble FMS-like tyrosine kinase-1 prospectively predict cancelled IVF cycles. J Assist Reprod Genet. 2019 Dec;36(12):2485-2491.

Ratan BM, Garbarino AH, Sellner AA, Miao D, Hollier LM.
Social Determinants of Gestational Weight Gain in an Obese, Low-Income Population. Am J Perinatal. 2020 Feb;37(3):296-303.

Soriano A, Sansone S, Arora E, Arya L, Andy U.
Risk of Contamination of Voided Urine Specimen in Women with Pelvic Organ Prolapse. Female Pelvic Med Reconstr Surg. 2019 Jul 17.

Speranza R, Kuo K, Hackmon R.
Fetal Dilated Cardiomyopathy Associated with Variants of Uncertain Significance in MyH7 and DSG2 Genes: A Case Report and Review of the Literature. J Obstet Gynecol Can. 2020 Mar 11.

Stewart KA, Allen SM, Chesnokova AE, Syed F, Levison JE.
Incidence of abnormal cervical and vaginal cytology among women over age 65 years living with human immunodeficiency virus. Am J Obstet Gynecol. 2019 Oct 31.

Zafman KB, Bergh EP, Cohen N, Odom E, Fox NS.
The effect of microbiome exposure at birth on pediatric outcomes using a twin cohort discordant for microbiome exposure at birth. J Matern Fetal Neonatal Med. 2019 Nov 18: 1-7.

Zafman KB, Rebarber A, Fox NS.
Serial Cervical Length Evaluation in Low-Risk Women with Shortened Cervical Lengths in the Midtrimester: How Many Will Dilate Prior to 24 Weeks? Am J Perinatol. 2020 Jan; 37(1): 14-18.

Zafman KB, Rebarber A, Melka S, Naqvi M, Fox NS.
Induction of Labor versus Cesarean Delivery in Twin Pregnancies. Am J Perinatol. 2019 Jul 25.

Notes