

and day 3 grading compared to age and day5/6 morphology alone (65% versus 53%; $p<0.11$).

CONCLUSIONS: We found no difference between fresh and frozen SET. Higher LBR was seen from blastocysts than from day 3 SET, but PGS did not increase LBR. This may be partly due to low power and many patients in the cohort using a 5-panel fluorescent-in-situ-hybridization for PGS, rather than Comparative-Genomic-Hybridization. While further studies are needed to validate aneuploidy screening, especially in women >38 , our data support blastocyst SET in women <38 and suggest SET LBR is similar fresh or frozen, and with or without PGS, which is expected since euploid embryos will still be normal even without screening.

FINANCIAL SUPPORT: None.

P-32

Very Thin Endometria in the Late Proliferative Phase Is More Associated with Poor Pregnancy Rates Following Controlled Ovarian Hyperstimulation Than Graduated Estradiol Regimens Used for Frozen Embryo Transfer. J. H. Check,^{a,c} R. Cohen,^{a,b,c} C. Wilson,^c D. Corley,^{a,c} C. Dietterich.^c ^aCooper Medical School of Rowan University, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ; ^bPhiladelphia College of Osteopathic Medicine, Philadelphia, PA; ^cCooper Institute for Reproductive and Hormonal Disorders, P.C., Marlton, NJ.

BACKGROUND: From the early days of IVF-ET thin endometria at the time of peak follicular maturation was negatively associated with pregnancy rates (PRs). Though improvement in IVF technology has produced “heartier” embryos there is still a negative association with thin endometria and pregnancy outcome but not as severe as before. One option for thin endometria is to freeze all embryos and transfer in a subsequent cycle using a graduated estrogen protocol which usually but not always improves the endometrial thickness. Since controlled ovarian hyperstimulation (COH) may adversely effect successful implantation, doing frozen ET could improve embryo implantation rates even if endometrial thickness is not improved.

OBJECTIVE: To compare PRs at each mm endometrial thickness in both COH and IVF-ET cycles and frozen ET cycles.

MATERIALS AND METHODS: Women aged ≤ 42 attaining a peak 4 or 5mm endometrial thickness during COH IVF were generally advised to freeze all embryos and defer fresh ET. Those having fresh ET at 4 or 5mm were generally those who were undergoing another round of IVF but had failed to improve thickness following graduated estradiol (E2) replacement for a frozen ET from a previous IVF cycle.

RESULTS: Comparison of the live delivered (LD) PRs and implantation rates at 5, 6, 7 and 8mm between fresh and frozen ET are seen in the table below. For this series ETs were performed only with maximal thickness of >4 mm. For IVF-ET cycles there were only 2 live deliveries in 20 transfers (10%) 4-5mm thickness vs. 9/25 (36%) with frozen ET ($p=0.079$, Fisher’s exact test). The implantation rate at 4-5mm was also higher for frozen ETs - 27.2% (18/66) vs. 10.6% (5/47) ($p=0.0325$ Fisher’s exact test).

IVF-ET and frozen ET cycles pregnancy rates based on endometrial thickness

Endometrial thickness (mm)	IVF-ET cycle				Frozen ET cycle			
	5	6	7	8	5	6	7	8
# retrievals	9	24	93	192				
# transfers	3	17	78	185	3	22	75	301
% cancelled poor lining	66.7%	29.2%	16.1%	3.6%				
% delivered/transfer	0.0%	11.8%	24.4%	27.0%	33.3%	36.4%	20.0%	27.9%
Implantation rate	0.0%	12.8%	15.1%	17.9%	33.3%	26.7%	11.8%	17.0%

The live delivered pregnancy rates seemed comparable until ≥ 13 mm when the live delivered pregnancy rate seemed to increase by about 20% to 35.7% (93/260).

CONCLUSIONS: These data suggest that COH exerts some negative effect on the endometrium to inhibit implantation which mostly manifests if there is a thin endometrium.

SUPPORT: None.

P-33

Retention of a Vaginal Film. J. Lucas,^a D. Patton,^a K. Maravilla.^b ^aDept. of Ob/Gyn, University of Washington School of Medicine, Seattle, WA; ^bDept. of Radiology, University of Washington School of Medicine, Seattle, WA.

BACKGROUND: Previous studies have used magnetic resonance imaging (MRI) technology to evaluate the distribution of contrast enhanced antimicrobial preparations shortly after placement in the genital tract.^{1,2} Topical antimicrobial preparations currently under development for vaginal use offer a variety of characteristics regarding product retention, drug delivery and purported window of efficacy. This study assessed the dissolution and dispersal of an intravaginal film formulation designed to deliver tenofovir.

OBJECTIVE: MRI was used to track the dispersal of vaginal film products from the point of intravaginal instillation throughout the vagina and potential transport to the upper reproductive tract or rectal tissues.

MATERIALS AND METHODS: Films containing tenofovir were labeled with MultiHance. The films were placed under direct visualization via speculum examination onto the face of the cervix in each of four anesthetized pigtailed macaques. A 3T Philips Achieva scanner optimized with a knee coil was used for MRI. Sagittal and axial sections of the macaque’s pelvic cavity were obtained at four and 24 hours post film insertion. MRI scans were scored on a binary scale for presence versus absence of signal in the vaginal canal, ectocervix, endometrium, fallopian tubes, rectum, urethra and periurethral tissues.

RESULTS: In all 4 animals imaged, contrast was clearly seen throughout the vagina at 4 hours after placement of the vaginal film. At 24 hours, the signal was markedly reduced. No evidence of contrast was noted in other areas of the genitorectal tract at either time-point.

Subject	4 hours post-insertion			24 hours post-insertion		
	Vaginal canal	Ectocervix	Other sites	Vaginal canal	Ectocervix	Other sites
1	+	+	-	+	-	-
2	+	+	-	+	-	-
3	+	+	-	+	-	-
4	+	+	-	+	-	-

CONCLUSIONS: The vaginal film product was dispersed throughout the vaginal canal and vault up to 24 hours post film placement. No evidence of product transport was observed in the upper reproductive tract or rectum.

SUPPORT: National Institutes of Health Grant Numbers: AI082639 and WaNPRC-RR00166.

References

1. Patton DL. Fertility Sterility Supplement 2010:93(No5) Suppl 1, S20.
2. Hendrix CW. Br J Clin Pharmacol. 2012 Dec;74(6):1013-22.

P-34

Day 5 “Early Blastocysts”: Worthy of a Biopsy in IVF Cycles with PGS? Jonathan Kort, M.D., Ruth Lathi, M.D., Valerie Baker, M.D.,

BACKGROUND: For patients undergoing IVF with PGS and hoping for a fresh Day 6 transfer, ploidy information will only be available at the time of transfer for embryos biopsied by Day 5. Some centers limit biopsy to embryos that have developed to a blastocyst stage and expanded to a Gardner grade ≥ 3 . This practice limits the number of blastocysts with ploidy information available at the time of a fresh Day 6 transfer and may limit the number of euploid blastocysts available for transfer.

OBJECTIVE: To assess the association between blastocyst grade at the time of Day 5 biopsy with ploidy, and to assess the practice of Day 5 biopsy of "early blastocysts" when aiming for a fresh Day 6 transfer.

METHODS: Autologous IVF-PGS cycles with Day 5 biopsy completed between 2010 and 2013 were analyzed. Only embryos with 24 chromosome analysis were included. Day 5 embryo developmental stage, ploidy, and cycle outcome were reviewed. Embryos were assessed using the Gardner scale. Blastocysts were defined by a score ≥ 1 , and "early blastocysts" were defined by a score ≤ 2 .

RESULTS: One-hundred and twelve IVF-PGS cycles from 83 patients were included, providing 638 embryos that were biopsied on Day 5. Of these embryos, 514 were blastocysts at the time of Day 5 biopsy, and 487 had ploidy results available from the Day 5 biopsy. There was a significantly higher rate of aneuploidy among embryos with Gardner expansion grades 1, 2, and 3, compared to blastocysts with greater degrees of expansion (Table 1). Early blastocysts comprised 16% of all euploid blastocysts biopsied on Day 5. There were fourteen subsequent transfers of former Day 5 early blastocysts,¹ resulting in an implantation rate of 78.6 % and a live birth/ongoing pregnancy rate of 64.3%.

TABLE 1. Ploidy information corresponding to Gardner expansion grades

Gardner expansion grade	Pre-Blast (<1)	1	2	3	4	>4
# of embryos with PGS results	124	90	45	83	18	251
(%) Euploid	15%	23%	22%	35%	39%	49%
p-value	<0.05	<0.05	<0.05	<0.05	NS	-

CONCLUSIONS: Day 5 Gardner expansion grade is significantly associated with aneuploidy rates. Although Day 5 early blastocysts have a significantly higher aneuploidy rate compared to other Day 5 blastocysts, there is a considerable population of euploid early blastocysts that can be biopsied on Day 5 to have ploidy information at the time of a fresh Day 6 transfer, adding to the pool of euploid blastocysts available for transfer. In this cohort, euploid early blastocysts demonstrated similar potential for a successful pregnancy as euploid blastocysts with greater Day 5 expansion.

P-35

Paternal Age and Total Motile Sperm Parameters Are Not Correlated with Embryo Aneuploidy Rates. Jonathan Kort, M.D., Qianying Zhao, Barry Behr, Ph.D. Stanford University, Department of Obstetrics and Gynecology, Palo Alto, CA, USA.

BACKGROUND: Embryo aneuploidy is responsible for a significant portion of IVF cycle failures. Aneuploidy rates increase with maternal age, and female factors are often blamed for embryo aneuploidy. Less is understood about the male factors contributing to embryo ploidy. Some studies have demonstrated that aneuploidy rates are higher among men with worse semen parameters, although others have shown that the majority of aneuploidy embryos result from meiotic errors of the oocyte.

OBJECTIVE: To assess whether paternal age or baseline semen analysis parameters independently correlate with aneuploidy rates.

METHODS: Autologous IVF cycles with PGS between 2009 and 2013 were analyzed. Cycles without 24 chromosome analysis and cycles using donor sperm or oocytes were excluded. Charts were reviewed for maternal

age at the time of retrieval, paternal age at the time of retrieval, female AMH values, baseline pre-wash semen parameters, the number of embryos biopsied for PGS, and the number of euploid embryos. Multivariable regression and chi-squared analyses were used to assess the correlation between cycle characteristics and aneuploidy rates.

RESULTS: Eighty-four IVF-PGS cycles with 511 embryos were included for analysis. The mean female and male patient ages at the time of oocyte retrieval were 38.4 and 41.1 years old respectively. Twenty-nine percent of all embryos biopsied in the study population were euploid. Female patient age was the only characteristic that significantly correlated with aneuploidy rates. Neither male patient age nor total motile sperm were significantly correlated with aneuploidy rates or the number of euploid embryos. This finding was consistent among IVF cycles with and without ICSI. The aneuploidy rates for embryos conceived using the sperm from male patients with ≤ 5 million total motile sperm were higher than aneuploidy rates for embryos conceived using the sperm from male patients with > 20 million total motile sperm, but the difference was not statistically significant (68% vs. 56.0%, $p=0.33$).

CONCLUSIONS: In this cohort, neither male age nor total motile sperm were predictive of embryo aneuploidy rates. Further research may identify other male factor parameters that better reflect the male contribution to embryo aneuploidy.

SUPPORT: None.

P-36

Pelvic Spindle Cell Neoplasms Following Laparoscopic Hysterectomy with Uterine Morcellation. Katherine Hartzell, M.D.,^a Jasmine Tan-Kim, M.D.,^b Terry Harrison, M.D.^b ^aUniversity of California, San Diego/Kaiser Permanente San Diego, San Diego, CA, USA; ^bKaiser Permanente San Diego, San Diego, CA, USA.

BACKGROUND: Today, more hysterectomies are being done using minimally invasive technique, many of them requiring uterine morcellation. Spindle cell neoplasms, such as parasitic leiomyomas and uterine sarcomas, are rare, however it has been shown that morcellation of uterine sarcoma leads to worse outcomes. Currently, there are not established risk factors for the development of spindle cell neoplasms at the time of uterine morcellation.

OBJECTIVES: To describe the incidence and risk factors for development of spindle cell neoplasms (including parasitic leiomyomas and uterine sarcoma) at the time of laparoscopic uterine morcellation.

METHODS: Retrospective review of 3523 women who underwent laparoscopic hysterectomy from 2000 to 2012. Univariate analyses were used to identify potential risk factors for parasitic leiomyomas and uterine sarcoma. Significant values ($p<0.1$) and biologically plausible characteristics were put into a multivariate regression model.

RESULTS: 941 patients underwent uterine morcellation at the time of laparoscopic hysterectomy. Of these, 10/941 (1.1%) were diagnosed with spindle cell neoplasms. For parasitic leiomyomas ($n=4$), mean age was 37 years ± 3 years, and mean time to second presentation was 6 years ± 5 years. On multivariate analysis, younger age (OR 0.7, CI 0.54-0.90) and uterine weight $>350g$ (OR 13, CI 1.05-163.74) were associated with higher risk of developing parasitic leiomyomas. The incidence of uterine sarcoma was 0.6% (6/941) with a mean age of 44 years ± 5 years. Thirty three percent were menopausal at the time of morcellation. Multivariate analysis revealed that menopausal status was found to be associated with a higher risk for uterine sarcoma (OR 6, CI 1.05-32.56). Fifty percent of patients with uterine sarcoma had sarcoma diagnosed on initial Pathology report, and 50% had recurrence of uterine sarcoma with benign Pathology at the time of initial procedure; average time to second presentation was 5 years.

CONCLUSIONS: Younger age and uterine size $>350g$ are risk factors for development of parasitic leiomyomas after uterine morcellation, and menopause at the time of uterine morcellation is a risk factor for uterine sarcoma.

P-37

Omega-3 Fatty Acids (O3FA) and Embryo Quality: Do Erythrocyte Levels Affect In Vitro Fertilization (IVF) Outcomes? K. P. Comerford,^a M. H. Papadakis,^a M. L. Matthews,^a P. B. Marshburn,^a R. S. Usadi,^a H. J. Norton,^b B. S. Hurst.^a ^aDepartment of OB/GYN, Carolinas Medical Center, Charlotte, NC, United States, 28203; ^bBiostatistics, Carolinas Medical Center, Charlotte, NC, United States, 28203.

BACKGROUND: Nutrition plays an important role in fertility. Few published studies investigate effects of omega-3 fatty acids on oocyte

¹ Five transfers also included the transfer of an additional embryo that was not an early blastocysts on Day 5.