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Mid-secretory eutopic endometrium in intramural fibroids and severe endometriosis: relevance to fertility

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Authors

Aghajanova, L
Irwin, J
Giudice, LC

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predictive power in oocyte donor age for recipient outcome, some showing no difference and others describing a reduction in outcome from very young donors. This study aims to establish if oocyte donor age can predict the recipient outcome.

DESIGN: Standard oocyte recipient cycles from four private ART clinics between January 2008 and December 2013 were retrospectively reviewed and analysed for number of oocytes retrieved, maturity, fertilisation, achievement of an embryo transfer (ET), clinical pregnancy rate/ET (CPR), implantation rate (IR) and live birth rate/ET (LBR), based on oocyte donor age.

MATERIALS AND METHODS: 1229 cycles were divided into 8 groups based on oocyte donor age of 2 year intervals; 20-21(n=18), 22-23(n=37), 24-25(n=82), 26-27(n=111), 28-29(n=148), 30-31(n=238), 32-33(n=266), 34-35(n=329). Significance was determined using a Z-test of two proportions; a significance value of 0.05 and two tailed hypothesis.

RESULTS: No significant difference was apparent in embryological parameters assessed up to ET along with CPR, IR and LBR within the groups; a decrease in the three latter was seen in groups 28-29 and 34-35. Combining the two upper age groups and comparing to the two lower to increase the n number also did not show significance. CPR: 41.2% (7/17), 41.9% (13/31), 36% (27/75), 36.9% (38/103), 30.8% (44/143), 39.5% (88/223), 38.4% (93/242), 33.4% (100/299) respectively according to the above age groups. IR: 26.5% (9/34), 28.8% (17/59), 25.5% (38/146), 23.5% (47/200), 21.8% (60/275), 28.3% (121/427), 24.9% (118/473), 22% (128/582) respectively. LBR equalled the CPR up until the age of 25, after which miscarriages occurred. LBR: 34.9% (36/103), 26.6% (38/143), 34.5% (77/223), 33.1% (80/242), 27.8% (83/299) respectively.

CONCLUSIONS: No statistical difference was seen in outcome parameters of oocyte recipient cycles based on oocyte donor age. It should be noted that the 8 groups have an uneven number of cycles included which may affect data analysis. Those with a greater number of cycles are likely to be more reflective of the true result. As one of the largest studies so far published, it is reassuring to note that the age range provided by the HFEA guidelines shows no significant variation in the incidence of live Birth.

P-692 Wednesday, October 21, 2015

MID-SECRETORY EUTOPIC ENDOMETRIUM IN INTRAMURAL FIBROIDS AND SEVERE ENDOMETRIOSIS: RELEVANCE TO FERTILITY. L. Aghajanova, J. Irwin, L. C. Giudice. Obstetrics, Gynecology and Reproductive Sciences, University of California San Francisco, San Francisco, CA.

OBJECTIVE: Data are conflicting on the expression of endometrial receptivity markers in women with intramural uterine fibroids and the effect of on fertility. We aimed to investigate the mid-secretory phase (MSE) endometrial transcriptome of women with intramural fibroids and compare them to controls and those with severe endometriosis.

DESIGN: In silico and laboratory-based study.

MATERIALS AND METHODS: Well-annotated endometrial tissue samples were obtained through the UCSF/NIH Human Endometrial Tissue Bank. MSE samples were from 8 women with no uterine/endometrial pathology, 4 with intramural fibroids (no submucosal component) and 8 with severe endometriosis. Purified total RNA was subjected to microarray analysis with Gene 1.0 ST Affymetrix platform. Data were analyzed with GeneSpring and Ingenuity Pathway Analysis. Menstrual cycle phase was assigned by endometrial histology, estrogen/progesterone levels and bioinformatics methods. Microarray analysis validation was performed with Fluidigm array and real-time PCR.

RESULTS: Intramural fibroid MSE samples clustered separately from the control or endometriosis MSE. Comparison of differentially regulated genes revealed dysregulation of 1496 genes (989 up and 506 down) in endometrial samples from women with intramural fibroids vs. controls, 244 genes (139 up and 105 down) in severe endometriosis vs. controls and 1936 (1232 up and 704 down) genes in fibroid vs. endometriosis samples. Comparison of the gene lists above with the 238 Endometrial Receptivity Array (ERA) genes (Diaz-Gimeno et al, 2011) showed that only 8 and 1 genes were dysregulated beyond the ERA 3-fold threshold in samples from women with intramural fibroids or severe endometriosis respectively vs. controls. IGF-1 and nitric oxide signaling were the top regulated pathways in the fibroid group, and planar cell polarity and CRH signaling were the top regulated pathways in the endometriosis group, while comparison of the two diseases revealed involvement of hypoxia and oxidative stress pathways.

CONCLUSIONS: While ERA receptivity genes are minimally affected in the setting of intramural uterine fibroids and severe endometriosis, other genes are markedly different vs. normal controls, which may contribute to

the known poor pregnancy outcomes in these populations. Further studies are needed to validate or refute these observations.

Reference:

1. Diaz-Gimeno, Horcajadas JA, Martínez-Conejero JA, et al. A genomic diagnostic tool for human endometrial receptivity based on the transcriptomic signature. *Fertil Steril* 2011; 95(1):50-60.

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LUTEAL PHASE SUPPORT

P-693 Wednesday, October 21, 2015

IMPACT OF SHORT LUTEAL PHASE ON NATURAL FERTILITY. N. M. Crawford, K. Chantala, A. Steiner. University of North Carolina, Chapel Hill, NC.

OBJECTIVE: To determine the impact of a short luteal phase on fecundability.

DESIGN: Prospective, time-to-pregnancy study.

MATERIALS AND METHODS: Women, 30-44 years old with no history of infertility, who were trying to conceive for less than 3 months, were enrolled and followed until pregnancy. Each day women recorded bleeding, ovulation predictor test results, intercourse, and pregnancy test results for up to 4 months while attempting to conceive. For each cycle in which a woman did not conceive, the length of the luteal phase was determined by calculating the number of days from the first positive ovulation test to the last day of the menstrual cycle. We defined a short luteal phase as ≤ 11 days in length. We subsequently examined the probability of conceiving in a cycle based on presence or absence of a short luteal phase in the preceding non-conception cycle. Discrete time models were created to calculate fecundability ratios (FR) adjusting for maternal age. A FR < 1.0 suggests reduced fecundability.

RESULTS: 310 cycles from 177 women were included in the analysis. A short luteal phase occurred in the prior cycle in 12.3% of cycles. Overall, women in our cohort tended to be young (< 35 years), Caucasian, and of a normal body mass index. There were no significant demographic differences when stratified by presence or absence of a short luteal phase. In unadjusted analysis, women with a short luteal phase had 0.59 times the odds of pregnancy in the next cycle (95% CI: 0.23-1.55) when compared to women without a short luteal length. After adjustment for age, women with a short luteal phase had 0.62 times the odds of pregnancy in the next cycle (95% CI: 0.24-1.61) when compared to women without a short luteal length.

CONCLUSIONS: Preliminary point estimates suggest that a short luteal phase may have significant impact on the probability of natural conception independent of maternal age. However, confident interpretation of these findings will require a larger sample size.

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P-694 Wednesday, October 21, 2015

THE DURATION OF LUTEAL PHASE SUPPORT BY PROGESTERONE IN FRESH TRANSFER CYCLES CAN BE DETERMINED BY CORPUS LUTEUM RESCUE OR NOT. Y. R. Lien,^a G. Jou,^a P. Yang,^b S. Chen.^a ^aDepartment of Obstetrics and Gynecology, National Taiwan University Hospital, Taipei, Taiwan; ^bObstetrics and Gynecology, National Taiwan University Hospital, Taipei, Taiwan.

OBJECTIVE: Duration of luteal phase support (LPS) after pregnancy from fresh embryo transfer (ET) is a controversial issue, early stop or continuation to approximately 10 weeks. Our study is to explore whether corpus luteum rescue in fresh ET cycles could determine the duration of LPS with progesterone supplementation.

DESIGN: Retrospective cohort study between Jan 2010 and Mar 2012.

MATERIALS AND METHODS: Women (n=273) who underwent fresh non-donor ET after standard ovulation induction and oocyte retrieval received subsequent LPS by Crinone (8% vaginal gel) and Estradiol Valerate were included. The LPS were started 2 days after oocyte retrieval (day 0) and lasted at least 2 weeks until pregnancy was confirmed (β -HCG ≥ 10 mIU/ml). The pregnant women were divided into two groups: the control group received LPS until 7-12th weeks, and the study group discontinued the LPS at ≤ 6 th weeks. We documented their 12th week ongoing pregnancy status. A received operative curve (ROC) based on the maximization of