RESULTS: The human blastocyst transcriptome contained 33,587 gene transcripts including numerous splicing variants and isoforms resulting in 13,136 annotated genes. PCA and unsupervised hierarchical clustering completely separated each of the four infertility diagnoses groups by their transcriptomes. Significant differences in gene transcription were observed compared to fertile controls (PCO = 1,129, MF = 495 and Unexplained = 650 altered transcripts; >2 fold; P<0.05). Notably, the most significant transcriptome variation was observed in blastocysts derived from infertile PCO patients. Analysis recognized enriched pathways with decreased transcripts for gap junction proteins, p53 and calcium signaling, histidine metabolism, ECM receptor interaction and cytokine-cytokine receptor interactions (P<0.05).

CONCLUSION: Infertility diagnosis, specifically a PCO environment, has a significant impact on the developing blastocyst's transcriptome, including alterations in key signaling pathways. This study opens new perspectives for understanding the impact of infertility diagnosis on the molecular signature of embryonic development and implantation potential. In addition, it emphasizes the importance of accurate and consistent clinical diagnosis for patient management.

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ROBOTICALLY ASSISTED OVARIAN TISSUE TRANSPLANTATION WITH HUMAN EXTRACELLULAR MATRIX: OVARIAN STIMULATION AND IN VITRO FERTILIZATION OUTCOMES. K. Oktay,[a,b] G. Bedoschi,[a,b] F. Pacheco,[a,b] R. Stobezki,[b] V. Turan.[a,b] [a]Innovation Fertility Preservation and IVF, New York, NY; [b]New York Medical College, Valhalla, NY.

OBJECTIVE: One of the major limitations of ovarian transplantation (OT) is the large follicle loss due to initial ischemia until full revascularization occurs. We hypothesized that robotic assistance and the utility of a revascularizing extracellular matrix scaffold (Alloderm®) my enhance OT and in vitro fertilization outcomes.

DESIGN: A prospective study of two subjects (P-A and P-B) at an academic center who underwent robotically assisted orthotopic autologous OT using Alloderm® as the scaffold.

MATERIALS AND METHODS: One ovary was cryopreserved as 5x5-mm ovarian cortical pieces via a slow freezing method prior to preconditioning chemotherapy+radiotherapy for bone marrow transplantation at the ages of 22 (P-A) and 23 (P-B) for Hemophagocytic Lymphohistiocytosis and Hodgkin Lymphoma, respectively. One vial from each patient was thawed prior to OT to assess primordial follicle density.

RESULTS: Both experienced menopause post-chemotherapy as shown by high FSH, undetectable AMH and cessation of menses. Pre-OT follicle density was higher in P-A (1.66 ±0.37) than P-B (0.625 ±0.32 follicles/mm ^{2}) (p=0.05). Five of 10 (P-A) and 6 of 12 (P-B) vials, containing 10 and 12 cortical pieces respectively, were thawed . The pieces were sawn onto Alloderm® under a surgical microscope and sutured onto the bivalved in situ ovary with robotic assistance. Ovarian follicle development was observed 10 (P-A) and 8 (P-B) weeks after grafting. Participants wished to cryopreserve as many embryos as possible before attempting pregnancy, against the possibility of early cessation of graft function. Following 6 and 4 cycles of IVF, five D3 embryos were cryopreserved from each (P-A: 8-cell-A, 6-cell-A and three 6-cell-B; P-B: 8-cell-A, two 6-cell-A, 10-cell-B and 5-cell-B) at the time of this report. Peak E2 levels reached 808 pg/mL in P-A and 543 pg/mL in P-B. While the baseline FSH (range: 8.0-15.4 mIU/mL) and E2 (7.7-70 mIU/mL) levels near-normalized by 8 months post-OT and remained steady in P-A, P-B showed improved but elevated FSH levels throughout (range: 24.3-47 mIU/mL). Highest follicle yield was achieved 9- (6 follicles; P-A) and 4-months (4 follicles; P-B) post OT.

CONCLUSION: Robotic assistance and the utilization of Alloderm® may enhance the precision and success of ovarian transplantation. It appears that baseline primordial follicle density is predictive of post-transplant follicular activity. Interestingly, the response to ovarian stimulation can improve over a 9-month period post ovarian transplant.

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SECOND DOSE METHOTREXATE IN ECTOPIC PREGNANCIES-THE ROLE OF BETA HUMAN CHORIONIC GONADOTROPIN. I. Vagman, G. Bibi, A. Cohen, B. Almog, J. Lessing, I. Levin. Department of Gynecology, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel.

OBJECTIVE: To evaluate the role of beta human chorionic gonadotropin (β-hCG) levels in days 1, 4 and 7 as predictor for second dose Methotrexate requirment and success for women with ectopic pregnancies.

DESIGN: Retrospective study.

MATERIALS AND METHODS: Women with extra-uterine pregnancies treated with Methotrexate "single dose" protocol were included. β-hCG levels in days 1, 4 and 7 were used to evaluate Methotrexate second dose requirement and success. Surgical intervention was performed in cases of Methotrexate second dose treatment failure or suspected tubal rupture.

RESULTS: During the study period 1703 patients were admitted for ectopic pregnancy. Four-hundred and nine received Methotrexate of whom 73 women required second dose of Methotrexate. The requirement of second dose of Methotrexate was associated with significantly higher day 1 β-hCG levels (1425 vs. 781 respectively, p<0.001). Of those women who required second dose of Methotrexate (n=73), 58 (79.4%) were treated successfully (success group), while 15 women (20.6%) required surgical intervention (failure group). The medians of β-hCG level in days 1, 4 and 7 were significantly higher in the "failure group" compared to the "success group" (2844 vs.1601 IU/mL, p<0.01, 3225 vs. 2164 IU/mL p<0.05, and 3745 vs. 1915 IU/mL, p<0.05 respectively). Using logistic regression analysis, we found that day 1 β-hCG levels were the only significant independent variable for second dose treatment outcome. Receiver operator characteristic curve for β-hCG levels in day 1 was 0.727, and at a cutoff value of 2234IU/mL the sensitivity and specificity reached the optimum for treatment success (77.5% and 73.3% respectively).

CONCLUSION: Day 1 β-hCG levels were the only predictors for Methotrexate second dose requirement and treatment success, while Serum β-hCG levels on Days 5 and 7 did not predict treatment outcome. The cut-off value of β-hCG on day 1 with the optimal treatment results was found to be 2234 mIU/mL.

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UTILITY OF MAGNETIC RESONANCE IMAGING (MRI) IN THE EVALUATION OF INTRAOPERATIVELY CONFIRMED PELVIC ADHESIONS: A RETROSPECTIVE ANALYSIS. M. L. Macer, M. Spektor, M. Mathur, S. Gysler, S. M. McCarthy, P. H. Kodaman. Yale-New Haven Hospital, New Haven, CT.

OBJECTIVE: To evaluate the effectiveness of MRI in predicting intraoperative pelvic adhesions.

DESIGN: An IRB approved retrospective analysis of 98 patients referred to a reproductive endocrinology and infertility practice at a single academic hospital between 2008 and 2013. MRI images and operative reports were reviewed specifically for pelvic adhesions and findings were compared.

MATERIALS AND METHODS: 600 patients who underwent MRI pelvic imaging were reviewed. Inclusion criteria were patients with MRI and subsequent gynecologic surgery within 6 months. Imaging was reviewed by two independent radiologists (A and B) examining specifically for pelvic adhesions. Adhesions were classified into 5 locations: right pelvic sidewall, left pelvic sidewall, posterior cul de sac, anterior cul de sac, and not otherwise specified. Operative reports were reviewed for the presence of pelvic adhesions and similarly classified in the above locations. The MRI and intraoperative findings were then compared to calculate MRI sensitivity and specificity for pelvic adhesions.

RESULTS: 98 patients fit inclusion criteria. Patient ages ranged from 11-51 years. Of these, 54/98 (55%) had intraoperative findings of pelvic adhesions. For radiologist A, sensitivity and specificity analysis is as follows: any pelvic adhesion: 62% and 91%; left pelvic sidewall: 38% and 95%; right pelvic sidewall: 40% and 90%; posterior cul-de-sac: 73% and 78%; and anterior cul-de-sac- 38% and 95%. For radiologist B, sensitivity and specificity analysis is as follows: any pelvic adhesion: 44% and 91%; left pelvic sidewall: 5% and 95%; right pelvic sidewall: 0% and 99%; posterior cul-de-sac: 64% and 84%; and anterior cul-de-sac: 31% and 97%.

CONCLUSION: Our study demonstrates that preoperative MRI is useful for the evaluation of pelvic adhesions. The specificity of MRI in the detection of pelvic adhesions is consistently over 90% in all locations with the exception of the posterior cul-de-sac. Furthermore, the results are consistent between two independent radiologists. These findings demonstrate the utility of preoperative MRI in evaluating adhesive disease. If pelvic adhesions are seen on MRI, they will likely be encountered intraoperatively, which is helpful for surgical planning. The sensitivity is low in all locations, which makes MRI a poor screening tool, but may be attributed to MRI slice thickness and adhesion characteristics. Future studies with a prospective design will be useful in further defining the utility of preoperative MRI.