

DESIGN: In vivo mouse study.

**MATERIALS AND METHODS:** Eighteen 8-week old mice were randomly divided into three groups: control, cyclophosphamide (Cy) group, and AMH + Cy group. Mice in the AMH + Cy group were pretreated intraperitoneally with recombinant AMH (2 µg) 1 hour before intraperitoneal injection of Cy (150 mg/kg). Histological examination of ovaries was performed three and seven days later.

**RESULTS:** In the Cy-treated ovaries, the number of primordial follicles was decreased, and the ratio of growing to primordial follicles was significantly increased. Mice pretreated with recombinant AMH had similar ratio of growing to primordial follicles to the controls, indicating that recombinant AMH prevented the recruitment of follicles triggered by Cy treatment.

**CONCLUSIONS:** We demonstrated that pretreatment of recombinant AMH inhibited the transition of the primordial follicles to growing follicles. Other tests were under investigation to examine its application to fertility preservation.

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**VALUE OF ANTIMULLERIAN HORMONE AND ANTRAL FOLLICLE COUNT IN PREDICTING FERTILITY PRESERVATION CYCLE OUTCOMES.** V. Emirdar,<sup>a</sup> V. Turan,<sup>a</sup> F. Moy,<sup>b</sup> G. Bedoschi,<sup>a</sup> K. H. Oktay.<sup>a,c</sup> <sup>a</sup>Department of Obstetrics&Gynecology, New York Medical College, Valhalla, NY; <sup>b</sup>Biostatistics and Epidemiology, New York Medical College, Valhalla, NY; <sup>c</sup>Innovation Institute for Fertility Preservation, New York, NY.

**OBJECTIVE:** Appropriate strategy to predict the fertility preservation (FP) cycle outcomes has not been determined. Our aim was to identify the values of antimullerian hormone measurements (AMH) and antral follicle counts (AFC) in the prediction of oocyte yield in response to controlled ovarian stimulation with letrozole plus gonadotropins (LG).

**DESIGN:** Secondary analysis of prospectively collected database.

**MATERIALS AND METHODS:** One hundred and fifty two women with breast cancer who underwent ovarian stimulation with LG protocol for oocyte and/or embryo cryopreservation were included. Serum AMH and AFC were determined on cycle day 2/3. The patients who produced ≤4 oocytes or ≤2 embryos were considered low-responders (LoR).

**RESULTS:** The mean age of the patients was 34.9±4.5 years. AMH was better correlated with oocyte yield and the number of embryos cryopreserved than AFC (r=0.625, p<0.001 vs r=0.348, p<0.001 for oocyte yield and r=0.422, p<0.001 vs r=0.280, p=0.001 for the number of embryo cryopreserved, respectively). By ROC curve analyses, AMH was similar in predicting normal response for oocyte (AUC for AMH=0.896 vs AFC=0.815; p=0.223) and embryo yield (AUC for AMH=0.847 vs AFC=0.721; p=0.143). For AMH cut-off of 1.1, positive (PPV) and negative predictive values (NPV) for low ovarian response were 100 % and 20.2 % respectively. For AFC<6, PPV and NPV were 90.9 % and 50 % for the same, respectively.

**CONCLUSIONS:** Overall, AMH is a stronger predictor of LoR to LG stimulation than AFC in breast cancer patients undergoing FP. This information maybe useful in guiding women undergoing oocyte or embryo cryopreservation before chemotherapy.

References:

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**OVARIAN STIMULATION RESPONSE AND PREGNANCY OUTCOMES USING LETROZOLE AND GONADOTROPINS IN PATIENTS WITH BREAST AND ENDOMETRIAL CANCER.** N. Pereira,<sup>a</sup> J. Lekovich,<sup>a</sup> G. L. Schattman,<sup>b</sup> Z. Rosenwaks.<sup>c</sup> <sup>a</sup>The Ronald O. Perleman and Claudia Cohen Center for Reproductive Medicine, New York, NY; <sup>b</sup>Weill Medical College/Cornell University, New York, NY; <sup>c</sup>Weill Cornell Medical College, New York, NY.

**OBJECTIVE:** To investigate ovarian stimulation response and pregnancy outcomes following stimulation with letrozole and gonadotropins in patients with breast and endometrial cancer.

**DESIGN:** Retrospective cohort study.

**MATERIALS AND METHODS:** All patients with either breast or endometrial cancer undergoing controlled ovarian stimulation (COS) for in vitro fertil-

ization (IVF) with letrozole and gonadotropins were included. Letrozole (5 mg) was given concurrently during the entire duration of COS. Stimulation response of patients in the letrozole group was compared to patients undergoing COS with gonadotropins alone for elective/social cryopreservation of oocytes. Demographic characteristics included age, gravidity and body mass index (kg/m<sup>2</sup>). COS parameters recorded were total days of COS, total dosage of gonadotropins administered (IU), peak E2 level (pg/mL), and number of mature oocytes retrieved. Implantation rate, clinical pregnancy and live birth/ongoing pregnancy rate per embryo transfer cycle was also calculated. Student's t-tests, Chi-square (χ<sup>2</sup>) tests, or Kruskal-Wallis tests were used as indicated. Odds ratios (OR) with 95% confidence intervals (CI) for the number of mature oocytes were also calculated. P < 0.05 was considered statistically significant.

**RESULTS:** 682 patients met inclusion criteria: 231 (220 breast cancer, 11 endometrial cancer) patients underwent COS with letrozole and gonadotropins, while 451 patients underwent stimulation with gonadotropins only. The odds for mature oocytes in patients undergoing COS with letrozole and gonadotropins was 2.71 (95% CI 1.29-5.72) compared to gonadotropins alone. 68 ET cycles occurred in the letrozole group. Of note, some of these ET cycles were in gestational carriers. The mean age of patients undergoing ET was 38.4 ± 5.11 years. The implantation, clinical pregnancy and live birth/ongoing pregnancy rate per ET cycle was 33.7%, 39.7%, and 32.3%, respectively. The live birth rate per ET cycle of our study cohort (39.7%) is comparable to live birth rate per ET cycle of age-matched patients (35.2%) undergoing frozen-thawed embryo transfers at our center.

**CONCLUSIONS:** Our findings suggest that COS with letrozole and gonadotropins yield greater number of mature oocytes at lower E2 levels compared to COS with gonadotropins alone. In breast and endometrial cancer patients undergoing ET, pregnancy rates are comparable to age-matched counterparts.

Comparison of Ovarian Stimulation Parameters: Breast or Endometrial Cancer vs. Elective/Social.

Parameter	Breast or Endometrial (n=231)	Elective/Social (n=451)	P
Age (years)	36 (33-38)	37 (34-39)	0.82
BMI (kg/m <sup>2</sup> )	21.3 (±5.11)	21.1 (±5.25)	0.63
AMH (ng/mL)	1.41 (0.70-2.29)	1.36 (0.67-2.32)	0.22
Total stimulation days	10.9 (±3.46)	10.4 (±3.69)	0.09
E2 on day of trigger (pg/mL)	622.8 (±204.2)	1801.8 (±601.1)	<0.01
Number of oocytes retrieved	12.3 (±3.99)	10.9 (±3.86)	<0.01
Mature oocytes (%)	87.9%	72.8%	0.07

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**OVARIAN CORTICAL STRIP CULTURE IN GAS PERMEABLE DISHES ENSURE SUPERIOR FOLLICULAR QUALITY AND VIABILITY.** R. Talevi,<sup>a</sup> G. Catapano,<sup>b</sup> S. Sudhakaran,<sup>a</sup> V. Barbato,<sup>a</sup> I. Fiorentino,<sup>a</sup> S. Braun,<sup>a</sup> A. Merolla,<sup>a</sup> R. Gualtieri.<sup>a,b</sup> <sup>a</sup>Biology, University of Naples Federico II, Napoli, Italy; <sup>b</sup>Environmental & Chemical Engineering, University of Calabria, Cosenza, Italy.

**OBJECTIVE:** Assessment of follicle grading, staging and viability in bovine ovarian strips cultured in different levels of media in conventional (Falcon) or O<sub>2</sub> permeable (Lumox) dishes.

**DESIGN:** Although, the life expectancy in several cancers greatly improved, anti-cancer regimes induce partial or complete infertility. Ovarian tissue culture is a broadly focussed topic in fertility preservation and follicle in vitro growth. To this end, several attempts were made to improve its efficiency but conventional culture dishes fail to ensure uniform oxygen (O<sub>2</sub>) tension due to falling gradients with increasing media depth.

**MATERIALS AND METHODS:** Ten 1mm x 1mm x 0.5 mm strips/dish (from the same ovary) were cultured for 6 days in α MEM with 0.1% BSA, 3mM glutamine, 50 µg/ml ascorbic acid, 1% ITS and 1% pen/strep in 2.5 or 5 ml (low and high volume: LV and HV) in conventional (CD) and gas permeable (PD) 6 cm dishes in 5% CO<sub>2</sub> in air. Grading and staging of follicles was assessed through histology, and viability through live-dead far red at the confocal microscope

**RESULTS:** the presence of a permeable bottom and the height of the medium, that are likely to influence O<sub>2</sub> levels, affected follicle quality and progression (grade 1 follicles %: HV-PD, 34.3; LV-CD, 23.5; HV-CD, 7.8; LV-PD, 0. Secondary follicles %: HV-PD, 28.5; LV-PD, 16.2; LV-CD, 11.8; HV-CD, 3.9). Moreover, confocal analysis of strips labeled in vivo with Live Dead Far red (Molecular Probes) showed that also follicle viability was