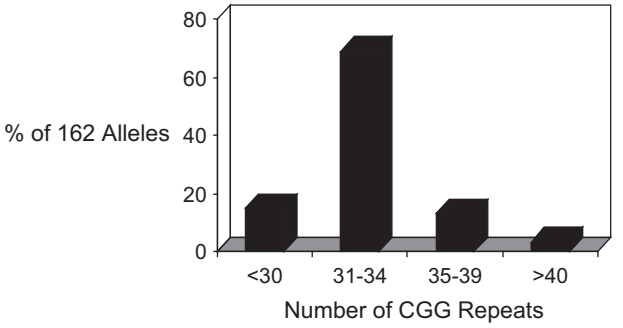
MATERIALS AND METHOD(S): Eighty-one women conceiving one to 10 children within 1 year of trying had buccal swabs taken. DNA was extracted using the Qiagen DNA mini kit. Analysis of fragile X was performed as follows: a 3.0-μL DNA sample was amplified by polymerase chain reaction (PCR) amplification in 20 μL volumes containing 13 μL high GC PCR buffer, 0.8 μL fragile X primers, 1.2 μL TR PCR enzyme mix, and 2.0 μL DNase/RNase free water. The number of CGG repeats was determined on a silver stained sequencing gel (6% acrylamide gel containing 7 M urea).

RESULT(S): The frequency of CGG repeats among fertile women was as follows:

CONCLUSION(S): The mean $\pm$ the 95th percent confidence interval (CI) percentile for the number of CGG repeats among fertile women is 32.3 (95% CI, 31.7–32.8).



P-15

Is it Possible to Distinguish a Difference in Response Between 200 U and 225 U of Follistim AQ Cartridges in Young Women Undergoing In Vitro Fertilization? The Follistim AQ Study Group: M. Feinman, M. Jacobs, K. Doody, L. Barmat, and J. Stelling.

BACKGROUND: When the Follistim AQ Cartridge was first introduced, its original manufacturer, Organon, produced pharmacokinetic data to show that their pen device was 18% more efficient at delivering the FSH than at delivering conventional reconstituted lyophilized powder.

OBJECTIVE(S): To see whether such small differences in dose could produce a clinically detectable difference in response.

MATERIALS AND METHOD(S): Institutional Review Board approval was obtained for this study. The study was designed as a multicenter, prospective, nonblinded, randomized, controlled trial, multicenter trial. One hundred two women under age 35 with FSH $<$10 and body mass index $<$30 underwent IVF treatment in five centers. Intracytoplasmic sperm injection was used when appropriate for male factor or medical history. The physicians were given the choice of performing day 3 or day 5 transfers, with an intent to transfer two or fewer embryos, unless medically indicated, but in both cases, a maximum of two embryos were transferred. All women received a 2–3 weeks of oral contraceptives before gonadotropin initiation. On the fifth pill-free day, women were assigned to begin daily injections of 200 IU (group A) or 225 IU (group B) of Follistim AQ, using the pen device. Daily doses of Ganirelix were commenced when the lead follicles were 14 mm. Women were given 5–10,000 IU of hCG when two follicles measured 18 mm. Ovum pickup was performed 35 hours after hCG. P supplementation was left to the discretion of the physicians. Peak E_2 levels, egg numbers, and pregnancy rates were compared in both groups. Statistical significance was evaluated with one-way analysis of variance.

RESULT(S): Fifty-one women from each group completed treatment. Peak serum E_2 levels were similar (group A, 1892 $\pm$ 863 pg/mL; group B, 2311 $\pm$ 1466 pg/mL, NS, P=.087), as was egg number retrieved (group A, 19 $\pm$ 9 eggs; group B, 18.4 $\pm$ 9 eggs, NS, P=.78). Clinical pregnancy rates were also similar in both groups (group A = 42%, group B = 41%, NS, P=.934). One woman in group A was hospitalized for severe ovarian hyperstimulation syndrome.

CONCLUSION(S): While pharmacokinetic data show Follistim AQ to be 18% more efficient compared with vial forms of FSH, we could not detect a difference in clinical response using slightly different doses of the hormone. However, our results suggest that young, good-prognosis patients undergoing IVF can successfully use 200 IU of Follistim AQ at a considerable financial savings.

SUPPORT: This investigator-initiated study was supported by Schering Plough, Corp.

P-16

The Role of Ovarian Mechanical Rigidity and Extracellular Matrix in Polycystic Ovary Syndrome and Obesity. J. Hirshfeld-Cytron,[a,b] T. Wellington,[a,b] J. Jozefik,[a,b] L. Shea,[c] T. Woodruff T.[a,b] [a]Department of Obstetrics and Gynecology, Feinberg School of Medicine, Northwestern University, Chicago; and [b]Center for Reproductive Science and [c]Department of Chemical and Biological Engineering, Northwestern University, Evanston, Illinois.

BACKGROUND: Polycystic ovary syndrome (PCOS) is the most common endocrinopathy of reproductive-age women. It has long been debated whether the ovarian dysfunction is intrinsic to the ovary or due to abnormalities of the hypothalamic-pituitary axis. The role of the extracellular matrix and ovarian stroma has received less attention. In our three-dimensional in vitro follicle maturation system using a mechanically rigid microenvironment, the androgen predominating hormone profiles and growth patterns of the secondary follicles phenocopy PCOS patients.

OBJECTIVE(S): To evaluate PCOS and normal control ovaries from archived surgical tissues for the presence of the most abundant extracellular matrix proteins: collagen, laminin, and fibronectin. We also determined whether age or obesity impact the ovarian physical rigidity or stromal protein in a mouse model.

MATERIALS AND METHOD(S): Ovarian tissue specimens from 13 PCOS patients, body mass index (BMI) 38.5 $\pm$ 3.3 kg/m^2, were used. Nine healthy, eumenorrheic subjects, BMI 34.2 $\pm$ 3.0 kg/m^2, were used as controls. Tissues were evaluated by Masson-Trichrome and immunostaining. We further evaluated adult mice from three time points (days 49, 100, and 270) and a diet-induced obese cohort at 100 days. A difference in mouse stromal tissue rigidity was qualitatively noted with increased rigidity at the oldest and obese cohorts. This was quantified by ranking whole ovary rigidity on a scale and protein analysis of an ovarian stromal marker, vimentin, by western blot.

RESULT(S): Laminin staining was greater in normal controls than in PCOS subjects, predominately staining on the cells lining the follicular cysts. The ovaries of the lean PCOS subjects (n = 3) exhibited staining intensity greater or equal to control ovaries. Fibronectin PCOS staining was also most like controls in the leanest PCOS subjects. Collagen staining was more robust in the PCOS cohort as it was most prominent in atretic follicles and the enlarged cortical capsule. The oldest and obese mouse cohorts scored the highest rigidity index. Vimentin protein analysis was statistically higher in the oldest, with a trend seen in the obese when both were compared with the younger, leaner animals.

CONCLUSION(S): The connection of the physical environment of tissue to function is increasingly being demonstrated in disease processes. The extension of this concept to the ovary has been demonstrated in vitro and is now being supported by differing PCOS extracellular matrix composition and increased stroma and physical rigidity of mouse tissue in older and obese cohorts.

SUPPORT: National Institutes of Health/National Institute of Child Health and Human Development grant no. U54 HD041857 and the Oncofertility Consortium grant nos. UL1DE019587 and RL1HD058295.

P-17

First Clinical Application of DNA Microarrays for Translocations and Inversions. D.S. Johnson, M. Hill, M. Abae, J. Frederick, M. Swanson, M. Rabinowitz.

BACKGROUND: Balanced chromosomal translocations and inversions are a common source of infertility because chromosomal segregation and/or recombination can result in lethal genetic disease in offspring. To detect unbalanced structural abnormalities and therefore avoid transfer of nonviable embryos, IVF physicians rely on fluorescent in situ hybridization (FISH) for preimplantation genetic diagnosis (PGD). New molecular methods, such as DNA microarrays, might improve these types of analysis. We previously developed and validated methods for DNA microarray-based aneuploidy screening that are compatible with day 5 transfer.

OBJECTIVE(S): To apply an extension of these methods to help infertile patients harboring balanced translocations or inversions.

MATERIALS AND METHOD(S): We performed preclinical experiments using amplified single cells applied to DNA microarrays to show that we could diagnose deletions at a resolution of approximately 5 megabases and duplications at a resolution of approximately 20 megabases. We then identified three families at risk of conferring unbalanced chromosome abnormalities to their offspring. Single blastomere biopsies were performed at day 3 postfertilization, amplified, and applied to DNA microarrays. The information was then used to make transfer decisions on day 5.

RESULT(S): In the first family, the mother carried a balanced pericentric inversion of chromosome 20 [46,XXinv(20)(p12q11.2)]. Out of six biopsied