

**NATURAL CYCLE IVF IS AN EXCELLENT TREATMENT OPTION FOR WOMEN WITH ADVANCED AGE.** T. Segawa, F. Yelian, K. Kato, T. Kobayashi, Y. Takehara, O. Kato. Kato Ladies Clinic, Shinjuku-ku, Tokyo, Japan; LIFE IVF Clinic, Irvine, CA.

**OBJECTIVE:** Women with advanced age have poor ART outcome. Controlled ovarian hyperstimulation is associated with multiple side effects. In this study, we are analyzing the outcome of nature cycle IVF in treating this group of patients.

**DESIGN:** Retrospective cohort study.

**MATERIALS AND METHODS:** After obtaining IRB approval, we reviewed nature cycle IVF data in our clinic from January to December 2008. All patients between 38 to 45 year old were analyzed. In nature cycle IVF, patients were closely monitored for their follicular growth. When dominant follicle reaches 17-19 mm, patients were given GnRH agonist for triggering oocyte maturation. Oocyte retrievals were performed 32-34 hours later. Single embryo transfers were performed at 4-cell stage (day 2) or blastocyst (day 5). Clinical pregnancy was confirmed after fetal cardiac activity noted by ultrasound. We divided patients into 3 groups: A (age 38-40); B (age 41-43) and C (age 44 and 45). Oocyte retrieval rate, fertilization rate, embryo cleavage rate and clinical pregnancy rate were analyzed in each group. Chi-Square test was used for statistical analysis, and  $P < 0.05$  was considered statistically significant.

**RESULTS:** Oocyte retrieval rates in each groups were A: 66.0% (401/608), B: 61.6% (252/409), and C: 56.4% (102/181), respectively. Fertilization rates were A: 77.8% (312/401), B: 81.3% (205/252), and C: 76.5% (78/102), respectively. Embryo cleavage rates were A: 71.1% (285/401), B: 71.4% (180/252), and C: 66.7% (66/102), respectively. Clinical pregnancy rates per embryo transfer were A: 29.8% (57/191), 20.8% (20/96), and 6.5% (2/31), respectively. No statistical differences were found among all groups except the clinical pregnancy rate. Patients with age 44-45 had significantly lower clinical pregnancy rate ( $P < 0.05$ ).

**CONCLUSIONS:** Women with advanced age are associated with poor ovarian reserve and they also have poor ART outcome with conventional IVF. Nature cycle IVF provides an excellent option for this group of patients.

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**LARGE MULTICENTRE, OBSERVATIONAL STUDY OF A NEW 2:1 FORMULATION OF FOLLITROPIN ALFA AND LUTROPIN ALFA IN ASSISTED REPRODUCTIVE TECHNOLOGY (ART) IN ROUTINE CLINICAL PRACTICE.** K. Bühler, O. G. J. Naether. Centre for Reproductive Medicine and Gynaecological Endocrinology, Langenhagen, Germany; Fertility Center Hamburg, Hamburg, Germany.

**OBJECTIVE:** A new 2:1 formulation of follitropin alfa and lutropin alfa (150 IU recombinant human follicle-stimulating hormone [FSH]:75 IU recombinant human luteinizing hormone [LH]; Pergoveris<sup>®</sup>) is available for follicular development in women with severe LH and FSH deficiency.

**DESIGN:** A non-interventional, observational study evaluated the use of this new formulation in routine clinical practice in ART.

**MATERIALS AND METHODS:** Between October 2007 and November 2008, 19 German IVF centres participated. Routine data for stimulated IVF and intracytoplasmic sperm injection were prospectively entered into an electronic database.

**RESULTS:** A total of 919 ART cycles from 857 patients were documented: 303 patients were poor responders and 93 had low basal LH; 58.7% were aged  $\geq 35$  years. Mean (SD) duration of stimulation was 10.8 (2.6) days. Human chorionic gonadotrophin was administered in 877 (95.4%) cycles, oocyte pick-up was performed in 858 (93.4%) cycles and 741 (89.2%) cycles resulted in embryo transfer. The mean (SD) number of oocytes retrieved per patient was 8.6 (5.6), 6.8 (79.5%) of which were mature oocytes. Two pronuclei were fertilized in a mean (SD) 4.1 (3.1) cases (62.5% of inseminated/injected oocytes). One, two and three embryos were transferred in 17.4%, 62.9% and 19.7% of cases, respectively (mean number 2.02 [0.61]). The implantation rate per embryo transferred was 23.8%, with a clinical pregnancy rate per transfer of 27.5%. Two cases (0.27%) of ovarian hyperstimulation syndrome grade III were observed; one resulted in hospitalization. Five extrauterine pregnancies (0.67%) were reported.

**CONCLUSIONS:** The use of this 2:1 formulation for ovarian stimulation during routine ART procedures was effective in achieving clinical pregnancies and was associated with a favourable safety profile. This formulation seems to be beneficial in patients aged  $\geq 35$  years, poor responders and those with low LH.

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**POOR OVARIAN RESPONSE IS ASSOCIATED WITH AN ALTERED CUMULUS CELL PROTEOME.** A. Janesch, J. Parks, W. B. Schoolcraft, M. G. Katz-Jaffe. Colorado Foundation for Fertility Research, Lone Tree, CO; Colorado Center for Reproductive Medicine, Lone Tree, CO.

**OBJECTIVE:** Ovarian follicular stimulation is a fundamental component of human IVF. Women with poor response to stimulation protocols typically have a lower probability for a successful outcome. This study investigated an association between the cumulus cell (CC) proteomic profile and ovarian response.

**DESIGN:** Proteomic analysis of human CCs.

**MATERIALS AND METHODS:** Infertile couples ( $n=20$ ) donated CCs with informed consent, following oocyte retrieval. Mature cumulus oocyte complexes (COCs) were trimmed with  $\sim 100$  cells per single oocyte collected ( $n=51$ ). CC samples were processed individually and proteomic profiles generated using surface enhanced laser desorption/ionization time-of-flight mass spectrometry. The Mann-Whitney non-parametric test compared CC proteomic profiles in 2 groups: Group A=poor responders ( $n=24$  CCs collected from oocyte retrievals with  $\leq 6$  total COCs collected) v. Group B=normal responders ( $n=27$  CCs collected from oocyte retrievals with  $> 6$  total COCs collected).

**RESULTS:** Evaluation of CC proteomic profiles  $< 30$ kDa discovered protein differences according to ovarian response. Statistical analysis revealed seven proteins showing significant differential expression ( $P < 0.001$ ). Six proteins across the range of 3.8-5kDa demonstrated increased expression in CCs derived from normal responders compared to poor responders ( $P < 0.001$ ). In contrast, one small protein (2.6kDa) showed a significant increase of expression in poor responders not observed in normal responders ( $P < 0.001$ ). Fertilization rates following ICSI were also established to be significantly different between the two groups, Group A=71% v. Group B=88% ( $P < 0.01$ ).

**CONCLUSIONS:** Women who respond poorly to ovarian stimulation protocols display significantly different CC proteomic profiles compared to normal responders. Identification studies are underway to characterize these differentially expressed CC proteins. Further understanding of the follicular environment in cycles of poor ovarian response could impact future patient management and IVF success.

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**SUPPLEMENTATION WITH DEHYDROEPIANDROSTERONE (DHEA) IMPROVES OVARIAN RESERVE, AS REFLECTED BY ANTI-MÜLLERIAN HORMONE LEVELS.** N. Gleicher, A. Goyal, A. Weghofer, D. H. Barad. Center for Human Reproduction - New York and Foundation for Reproductive Medicine, New York, NY; Department of Obstetrics, Gynecology and Reproductive Sciences, Yale University School of Medicine, New Haven, CT; Department of Obstetrics and Gynecology, Vienna University School of Medicine, Innere Stadt, Wien, Austria; Departments of Epidemiology and Social Medicine as well as Obstetrics, Gynecology and Women's Health, Albert Einstein College of Medicine, Bronx, NY.

**OBJECTIVE:** Dehydroepiandrosterone (DHEA) supplementation of women with diminished ovarian reserve (DOR) significantly improves oocyte/embryo numbers, quality, time to pregnancy, IVF pregnancies, cumulative pregnancies, and reduces miscarriages. This study attempts to determine whether DHEA objectively improves ovarian reserve (OR).

**DESIGN:** Cross-sectional and longitudinal cohort study.

**MATERIALS AND METHODS:** Anti-Müllerian hormone (AMH) was evaluated in 120 women with DOR, supplemented with micronized DHEA for 30 - 120 days (mean  $73 \pm 27$ ) at 25 mg TID. OR was evaluated using linear regression, assessing AMH over DHEA days. 55 women reached in vitro