RESULTS: When controlling for GnRH antagonist use (< 4 days vs. ≥ 4 days), clinical pregnancy rates were 54.0% vs. 52.8%; odds ratio, 0.95 (0.62 – 1.45) and live birth rates were 46.8% vs. 50.4%; odds ratio, 1.15 (0.76 – 1.76). When controlling for total gonadotropin use (< 10 days vs. ≥ 10 days), clinical pregnancy rates were 54.6% vs. 48.6%; odds ratio, 0.82 (0.53 – 1.27) and live birth rates were 50.0% vs. 47.7%; odds ratio, 0.91 (0.59 – 1.42).

CONCLUSIONS: In IVF cycles that utilize GnRH antagonists, clinical pregnancy and live birth rates are not adversely affected by either longer exposure to GnRH antagonists or total length of IVF stimulation.

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TRIPLOID ZYGOTE FORMATION RATE AND ART OUTCOMES. S.-H. Lee, D. W. Park, M. K. Kim, M. R. Shin, I. O. Song, C. K. Lim. Laboratory of Reproductive Biology and Infertility, Cheil General Hospital & Women's Healthcare Center, Seoul, Republic of Korea; Department of OB/GYN, Cheil General Hospital & Women's Healthcare Center, Kwandong University College of Medicine, Seoul, Republic of Korea.

OBJECTIVE: 3PN formation in IVF has long been observed. It can be raised after both conventional IVF and ICSI. It is believed that 3PN caused by either polyspermic fertilization or oocyte-derived abnormal PN formation. IVF outcome is depending on oocyte quality, and then 3PN formation rate can be a marker of oocyte quality and pregnancy outcomes. We attempt to assess whether 3PN frequency after conventional IVF/ICSI correlated with IVF outcomes.

DESIGN: Retrospective study.

MATERIALS AND METHODS: This study was a retrospective review of fresh IVF–ET cycles at our IVF center. The cycles which at least one 3PN observing among the total zygotes were included. All PGD cycles and cases with small number of retrieved oocytes (less than 5) were excluded. PN status was defined at 18h after conventional IVF/ICSI under stereo microscopy. We analyzed IVF outcomes according to 3PN frequency between ≥50% and < 50%.

RESULTS: Total 1,031 IVF cycles from Jan. 2003 to Dec. 2007 were analyzed. Table showed that 3PN ≥50% group has significantly lower number of good embryos and lower clinical outcomes compared to < 50% group in both conventional IVF and ICSI cases.

TABLE. Effect of 3PN formation on IVF outcomes.

3PN formation rate	< 50%	≥ 50%	P value
No. of cycles	992	39	
Mean of female age	33.2 ± 3.9	33.2 ± 4.1	NS
Mean no. of retrieved oocytes	17.2 ± 8.4	12.9 ± 8.7	< 0.05
Good oocyte rate (%)	76.0	61.5	< 0.05
2PN formation rate (%)	69.8	22.2	< 0.05
Good embryo rate (%)	61.0	48.7	< 0.05
Mean no. of transferred embryo	3.4 ± 0.7	2.2 ± 1.0	< 0.05
Clinical pregnancy rate (%)	47.1	17.9	< 0.05

CONCLUSIONS: Patients who has ≥ 50 % 3PN showed decreased IVF outcomes. This finding suggests that 3PN proportion is a surrogate marker of good quality oocytes that represents the integrity of the oocytes in the entire recruited cohort. Such findings therefore may help decide embryo transfer number and freezing of supernumerary zygotes and embryos.

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A GREATER THAN 10% FALL IN SERUM ESTRADIOL AFTER HCG ADMINISTRATION PREDICTS A SIGNIFICANTLY REDUCED CHANCE OF CLINICAL PREGNANCY AND LIVE BIRTH RATES AFTER IVF. L. A. Kondapalli, T. A. Molinaro, C. Coutifaris, A. Dokras-Jagasia. Division of Reproductive Endocrinology and Infertility, University of Pennsylvania, Philadelphia, PA.

OBJECTIVE: To determine whether serum estradiol (E2) response after human chorionic gonadotropin (hCG) administration is predictive of IVF outcomes.

DESIGN: Retrospective Cohort.

MATERIALS AND METHODS: Women 21-45yrs undergoing IVF-ET from 1999-2008 were included (n=1881). Serum E2 was measured on the day of hCG injection and the day after. IVF cycles were divided according to E2 response the day after hCG. Variables were compared using appropriate statistical tests. Clinical pregnancy was defined as intrauterine gestational sac visualized by ultrasound. Multivariable logistic regression was used to control for potential confounders.

RESULTS: There was a >10% rise in E2 (Group A) in 1173 while 134 cycles had a >10% decline in E2 (Group B).

TABLE. Demographic Factors and IVF Outcomes

	Group A (>10% rise) n=1173	Group B (>10% drop) n=134
Age (y)	34.76±4.42	35.08±4.19
# IVF Cycle	1.56 ±0.88	1.54 ±0.73
Diminished ovarian reserve*	16%	25%
Male factor	33%	28%
PCOS*	14%	7%
Tubal factor*	25%	17%
Unexplained infertility*	12	19%
GnRH agonist protocol	82%	76%
Mean pre-hCG E2 (pg/mL)	3044±1325	3256±1429
Mean post-hCG E2 (pg/mL)†	4107±1898	2701±1165
# Oocytes retrieved	12.80±6.90	12.06±6.81
# Embryos transferred	2.70±1.02	2.73±1.15
Clinical pregnancies/retrieval†	39%	23%
Live births/retrieval†	28%	13%

* P value < 0.05.
† P value < 0.001.

Group B was less likely to have a clinical pregnancy(OR 0.46,0.3-0.71) or live birth(OR 0.38,0.23-0.63). After controlling for age, stimulation protocol, cycle number and PCOS diagnosis, the associations for clinical pregnancy (OR 0.48, 0.31-0.71) and live birth (OR 0.38, 0.22-0.67) remained significant.

CONCLUSIONS: In our study, >10% decline in E2 after hCG administration was associated with lower clinical pregnancy and live birth rates. The ability to identify characteristics that predict IVF success is important for clinicians counseling patients regarding their likelihood of success.

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CLINICAL EXPERIENCE WITH PERGOVERIS™, A NEW FORMULATION OF RFSH AND RLH IN A 2:1 RATIO, FOR THE TREATMENT OF SUBOPTIMAL PATIENT POPULATIONS: SPANISH PRELIMINARY RESULTS. J. A. Ruiz Balda, J. L. Caballero, A. Roque, D. Ezcurra. Hospital 12 de Ocutbre, Madrid, Spain; FIV Center, Madrid, Spain; Merck Serono Spain, Madrid, Spain; Merck Serono S.A., Geneva, Switzerland.

OBJECTIVE: To evaluate utilization and outcomes of a new formulation of rFSH:rLH in a 2:1 ratio, in suboptimal populations of patients for IVF/ICSI.

DESIGN: Multicenter, prospective, observational study.

MATERIALS AND METHODS: 487 IVF/ICSI patients enrolled from 19 Spanish ART Centers between 2/2008 and 2/2009. In Spain, the addition of LH is a regular practice in young poor responders that didn't get pregnant in previous cycles, as well as in old patients. Cycles were stratified by patients age: < 35, ≥35-40 and ≥ 40 years old. Data from cycles was collected, descriptive statistics utilized, continuous data expressed as mean ± SD and categorical as percentages.

RESULTS: The utilization of a combination of rFSH:rLH in a 2:1 ratio in poor responders and old patients, was associated with antagonist in 75% of the cycles. Initial doses of 300:150 IU rFSH:rLH was maintained fix in 90% of the cycles and 93% of ITT patients went to OPU. The total number of follicles developed on the day of hCG was consistent in patients of all ages (9.5 for <35 years old and 8 for >40 years old). Results were summarized in table 1.

TABLE 1.

Age	<35	≥ 35 < 40	> 40
# Patients	105	314	68
Days on stimulation	9,4±1,7	9,6±1.7	9,7±2.0
Total dose of rFSH:rLH (150:75 IU) vials	18,0±6.8	18,7±6.2	19,5±6.9
Total dose of adittional rFSH (75 UI) vials	1,9±6.2	3,2±8.7	3,5±9.6
Total follicles on day of hCG	9,5±4.5	9,2±4.6	8,0±3.6
# follicles >14 mm	6,2±4.1	6,1±4.2	5,6±4.1
#oocytes retrieved	7,5±5.0	7,2±4.3	5,7±3.5
# MII retrieved	5,7±4.6	5,3±3.5	4,5±2.9
# 2 PN	3,6±3.3	3,5±3.1	3,3±2.1
# embryos on day 3	2,9±2.9	2,8±2.9	2,6±2.1
# Embryos transferred	2,0±0.8	2,0±0.9	2,0±0.9
% of cycles with embryo transfer	80	75,7	83,2
Clinical Pregnancy rate/IIT	21,8	27,1	26,4
Clinical Pregnancy rate/ET	27,8	35,6	31,4

CONCLUSIONS: The utilization of this new formulation achieved very good clinical pregnancy rates of 25.9% per ITT and 33.2% per transfer, in a suboptimal population of IVF/ICSI patients.

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UTILITY OF THE NATIONAL EMBRYO MORPHOLOGY DATA COLLECTED BY SART: CORRELATION BETWEEN MORPHOLOGIC GRADE AND LIVE BIRTH RATE. M. W. Vernon, J. E. Stern, G. D. Ball, J. D. Wininger, J. F. Mayer, C. Racowsky. Ob/Gyn, West Virginia University, Morgantown, WV; Ob/Gyn, Dartmouth-Hitchcock Medical Center, Lebanon, NH; Seattle Reproductive Medicine, Seattle, WA; Premier Fertility Center, High Point, NC; Ob/Gyn, The Jones Institute for Reproductive Medicine, Norfolk, VA; Ob/Gyn, Brigham and Women's Hospital, Boston, MA.

OBJECTIVE: To assess the relationship between the Embryo Morphologic Grade (EMG) of Day 3 (D3) and Day 5 (D5) IVF embryos and live birth rate.

DESIGN: A retrospective study from the IVF database collected by SARTCORS.

MATERIALS AND METHODS: From June 2006 to December 2007, SART-affiliated IVF clinics were requested to voluntarily report information about the EMG of transferred embryos to the SARTCORS database. The embryo classification system developed by SART assigned embryos to one of three categories: Good, Fair or Poor (G, F, P). We analyzed the EMG of embryos transferred on D3 (6 to ≥8 cell embryos) and D5 (blastocysts). Live birth rates/embryo transfer (LB/ET) were evaluated in a subset of patients who received two embryos of the same grade. LB/ET was examined by age (<35, 35-37, 38-40, and 41-42 YO).

RESULTS: 70,293 embryos from 28,186 ETs representing 19.1% of all fresh autologous ETs were morphologically classified by clinics in 46 states, the District of Columbia and Puerto Rico. D3 ETs were 58.7% and D5 were 29.6% of classified embryos. The distribution of embryos by grade was similar for D3 & D5 (D3 = 70%G, 24.2%F & 5.5%P; D5= 77.3%G, 18.6%F & 3.7%P). The LB/ET rate ($p < .05$) decreased by EMG on D3 & D5 (D3 = 45.3%G, 35.2%F, 21.3%P; D5 = 56.2%G, 42.16%F, 30.8%P). This decrease was observed in each age group and EMG negatively correlated ($p < .05$) with increasing age.

CONCLUSIONS: The EMG data collected by SART correlated with live birth rate. The predictive values generated by these data represent a valuable national standard that could be used by individual SART IVF programs for quality assurance assessment. Future analysis of a larger SART dataset may: 1) increase the accuracy of EMG for predicting pregnancy outcome; 2) lead to the development of a more accurate and universal EMG that could enhance the selection of fewer embryos at ET that would; 3) reduce the potential for multiple pregnancies.

Supported by: The cost of data collection was supported by SART.

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THE APPLICATION OF GNRH ANTAGONIST IN THE NATURAL CYCLE IVF. K. Kato, T. Segawa, S. Kawachiya, T. Kobayashi, Y. Takehara, O. Kato. Kato Ladies Clinic, Shinjuku, Tokyo, Japan.

OBJECTIVE: The ovulation induction with excessive gonadotropins has many side effects such as ovarian hyperstimulation syndrome (OHSS). Natural cycle IVF and minimal stimulation IVF significantly reduces the side effects of medication. For this reason, we only perform natural cycle IVF and minimal stimulation IVF in our clinic. Here we report our results of the application of GnRH antagonist in natural cycle IVF.

DESIGN: Retrospective study.

MATERIALS AND METHODS: We analyzed 866 IVF cases from Mar. 2006 to Jan. 2009. Trans-vaginal ultrasound and hormonal assays were performed, and when dominant follicle reaches 18 mm, E2 level reaches 250 pg/ml, and LH was within normal range, we gave GnRH agonist to trigger oocyte maturation. All patients (<39 year old) were divided into 3 groups. Group A: GnRH antagonist was given immediately. GnRH agonist (Buserelin 600 ug) was given in the night and scheduled for oocyte retrieval in 30-34 hours. Group B: No GnRH antagonist was used. GnRH agonist use and time of oocyte retrieval were same as Group A. Group C: No GnRH antagonist. GnRH agonist was given immediately. Oocyte retrieval was performed 26-30 hours after GnRH agonist. Furthermore, based on their LH levels, we divided into two sub-groups: Normal LH (≤9.9mIU/ml) and elevated LH (LH>10 mIU/ml).

RESULTS: The successful rates of oocyte retrieval in normal LH group were not differences in three groups (A: 67.5%, B: 67.1%, C: 72.2%), but in elevated LH group significantly differences in three groups (A: 59.2%, B: 42.9%, C: 71.9%, $p<0.05$). Clinical pregnancy rates in normal LH group were A: 65.1%, B: 43.9%, C: 50.0%, and significantly differences between A and B ($p=0.01$), and in elevated LH group were A: 61.5%, B: 47.1%, C: 50.5%.

CONCLUSIONS: The use of GnRH antagonist significantly improved the rate of oocyte retrieval. Interestingly, clinical pregnancy rate was also improved after the application of GnRH antagonist. In conclusion, the application of GnRH antagonist provides an excellent tool for natural cycle IVF.

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THE ICSI RESULT IS NOT RELATED TO THE STRICT CRITERIA OF SPERM MORPHOLOGY. J. J. Marcos, D. D. Robles, B. B. Amorocho, D. D. Lopez, D. D. Gumbao, J. J. Landeras. IVI Murcia, Spain.

OBJECTIVE: Our aim was to evaluate if the use of strict morphological criteria as a diagnostic tool would have any predictive value for ICSI results with morphology values < 2% of normal forms.

MATERIALS AND METHODS: We carried out a retrospective study (01/01/07-30/09/2008) at IVI Murcia of all those patients who had undergone ICSI treatment. Patients who formed part of the oocyte donation, PGD and semen bank programmes and those with severe pathologies were excluded from the study Following strict morphological criteria, we defined as a severe masculine factor, paying attention to morphology with <5% of normal forms. 257 semen samples were evaluated. We divided the study into three groups: 118 patients with a morphology superior to 5% of normal forms. 47 between 2 and 5% of normal forms and 92 with less than 2% of normal forms.

RESULTS: Fertility rates in the 3 groups were 78%, 70% and 70%, P.R were 44%, 49% and 37% and I.R. rates were 32%, 34% and 29% respectively. Statistically significant differences were not found.

CONCLUSIONS: In light of the results obtained in our study, we can conclude that sperm morphology as an isolated study marker is not a marker with predictive value for success rates with Assisted Reproduction Treatment.

Supported by: [Sperm morphology does not influence fertilization rate in vitro] Wu Y, Xu HM, Zhang SY, Xu WH, Tang F, Yang LH. Zhonghua Nan Ke Xue. 2008 Jul;14(7):610-3. Chinese. **The result of intracytoplasmic sperm injection is not related to any of the three basic sperm parameters.**