which ended to ET were analyzed retrospectively. In each cycle patients underwent a mock ET in mid luteal phase prior to treatment cycle (the date when patients referred to have consulted about down regulation regimen). The mock ET was done under trans-abdominal ultrasound guidance with full bladder in the dorsal lithotomy position. During mock ET the cervix was first inspected for unusual findings. a Wallace catheter was gently inserted in to the internal os while observing the catheter passage by ultrasonography. If the insertion of the catheter was done without difficulty or if slight manipulations of speculum on outer sheath of the catheter overcome the obstacle, the mock ET was graded as easy transfer. But if a tenaculum was used or if there was a need to change to rigid atheters the mock ET was graded as difficult transfer. In addition to grading of the transfer, the Length and position of uterus were recorded. The patient began their IVF treatment cycles and after ovum pick up the ones that had embryo were scheduled for ET. In real ET patients without getting any premedication, were put on in dorsal lithotomy position with full bladder. The transfer was done without ultrasound guidance .Embryos were replaced about 1.5cm less than the length of uterus. The same scoring was used for real ET. The age of the patients and outcome of each cycle (observation of beating fetal heart in a gestational sac of 6-7 weeks considered as positive) were recorded. The statistical analysis was performed using Chi-Square test.

RESULTS: Of 160 mock ET the Wallace catheter passed easily in 144 (90%) of cases. In the remaining 16 cases (10%) a tenaculum and or a rigid cannula had to be used. From 144 cases of easy mock ET, real ET was easy in 121 (84%) cases and in 23 (16%) cases difficultly was met during real ET. From those cases with difficult mock ET, 8 cases (50%) were difficult at real ET and 8 cases (50%) were easy at real ET (p = 0.001).The overall clinical pregnancy rate both for difficult and easy transfers was 35%. The difference between mean age for both difficult and easy real transfers was not significant and the pregnancy rate for easy real ET was 37.2% and for difficult real ET was 25.87%.Despite of the clinical difference, the statistical analysis shows no significance.

CONCLUSION: The results of our study show that mock ET before beginning of the treatment cycle is highly consistent with real ET and provides each patient with the highest chance of having an easy transfer. It also allows determination of the most suitable transfer catheter for each patient

P-342

Impact of Novel Formulations/Applicators of rFSH in IVF Patients: Pregnancy Outcomes. P. C. Magarelli, S. Y. Chan, M. Cohen. Reproductive Medicine and Fertility Center, Colorado Springs, CO.

OBJECTIVE: To identify impact of changes in formulations and medication doses for rFSH applicators: Follistim™ pen and Gonal-f ™ multi dose pen.

DESIGN: Retrospective clinical study. Reproductive Endocrinology & Infertility IVF Private.

MATERIALS AND METHODS: 118 infertile patients undergoing controlled ovarian hyperstimulation with gonadotropins and GnRH agonist and antagonist for IVF-ET (2003 to 2005) in a private practice IVF clinic. Main Outcome Measure(s): Cycles were grouped according to those that received Follistim™ (F) and those that received Gonal-f™ (G). Comparisons were made between F treated IVF patients and G treated IVF patients in clinical pregnancies, number of eggs retrieved, number of 2PN created, and average rFSH dosage per patient . All IVF cycles were monitored in standard fashion and all embryology was performed by a single embryologist. The statistics used for this analysis included: chi-square test, Mann Whitney U unpaired test, One-Way analysis of variance (ANOVA).

RESULTS: Age range and average age of both groups were not statistically different at $p > 0.05$ (NSD). Infertility diagnosis, years of infertility (range and average), day 3 FSH (range and average), Parity (range and average) were statistically similar. Average number of eggs retrieved was 15.1 for the F group and 14.8 for the G group (NSD). Number of 2PN created, percent fertilization rate by ICSI were the similar (NSD). Average number of embryos transferred was 2.1 in the F group and 3.2 in the G group ($p < 0.05$). Although, at this time, the pregnancy rates (PR) were not statistically different, 72% of the F group became pregnant and 67% of the G group did likewise, $p = 0.058$. Gntrps doses were statistically significantly different between the F and G pregnant groups (average per day of 2.99 in the F group and 3.18 in the G group, $p < 0.05$).

CONCLUSION: As new formulations or applicators (the Pen) for recombinant gonadotropins appear, RE&I's must determine the changes, if any, in stimulation protocols that will best serve the patients needs. This study suggests that F in its newest formulation and applicator can create more pregnancies with fewer embryos and at a lower dose than G. In a sister abstract we will demonstrate differences in ovarian responses based on type of formulation used and whether patients became pregnant or not.

P-343

Estradiol Levels on Day 3 and 5 as an Early Predictor of Ovarian Hyperstimulation Syndrome. L. G. Maldonado, W. C. Busato, L. M. Rossi, T. C. Bonetti, A. Iaconelli Jr., E. Borges Jr.. Fertility - Assisted Fertilization Center, Sao Paulo, Brazil.

OBJECTIVE: Ovarian hyperstimulation syndrome (OHSS) remains a dangerous complication of controlled ovarian stimulation (COS) for ART. Despite many years of clinical experience, the pathophysiology is poorly understood and there is no reliable test to predict patients who will subsequently develop OHSS. Although the estradiol levels and number of follicles have been used as predictive values to OHSS, controversies still occurs in literature. In previous study we have suggest a formula that seem to predict earlier the risks for OHSS based on estradiol values on days 3 and 5 of COS (ASRM 2004).

DESIGN: Prospective study

$$y = \frac{\exp^{-2.1155-0.0822\,D3+0.022\,D5}}{1+\exp^{-2.1155-0.0822\,D3+0.022\,D5}}$$

Legend: Y = percentage of risk to OHSS Exp = exponential D3 = E2 level on day 3 of menstrual cycle (pg / mL) D5 = E2 level on day 5 of menstrual cycle (pg / mL) In this study, we have been tested the formula efficiency using a specific protocol with microdose of recombinant hCG to COS.

MATERIALS AND METHODS: Twenty-eight young [mean age ($\pm$ SD): 31.9 $\pm$ 3.0] and thin [body mass index (BMI $\pm$ SD): 20.5 $\pm$ 2.6] patients were included in this study. Of these, 11 patients underwent COS followed by intracytoplasmic sperm injection (ICSI) before elaboration the formula and were retrospectively analyzed. Formula was applied after estradiol dosage on day 5 in these patients with the purpose to find a cut-off value that could indicate the real OHSS risk. One of 11 patients (9.1%), the result after the formula application has shown 69% of OHSS risk. Recombinant FSH (r-FSH) was not adjusted and patient evolved to OHSS. Of the rest (10 patients), OHSS risks were always lower than 50% with no OHSS. Based on those, we have established that, after formula application, the adjustment of r-FSH on day 5 should be done when OHSS risks were equal or higher than 50% due to avoid OHSS occurrence. After this, 17 patients had estrogen levels measured on days 3 and 5 of cycle, and formula application prospectively. This study-group patient underwent synchronization by using micronized 17β-estradiol. For pituitary blockage, GnRH antagonist (Cetrotide® - Serono) was used (0.25 mg daily) started on day-8 and continued until the day of r-hCG injection (250 μg). r-FSH (Gonal-F® - Serono) was started on day-3 of menstrual cycle (225 IU, daily or 450 IU, each other days). On days 9 and 10, r-hCG microdose (200 IU) and 75 IU of r-FSH was administered. From day-11 r-hCG microdose was used alone until the r-hCG trigger (250 μg).

RESULTS: Of the total, 3 patients (17.6%) have shown OHSS risks higher than 50% (54.5%, 98.0% and 99.7%). r-FSH doses were reduced in subsequent days and none of these patients developed OHSS. Other patients had shown OHSS risk lower than 50%. In these cases, the r-FSH doses were maintained with no OHSS occurrence.

CONCLUSION: Our study suggests that formula seems to be highly effective in preventing OHSS earlier. OHSS risks equal or higher than 50% after formula application, seems to be indicative to r-FSH dose adjustment and consequently, seems to avoid efficiently the OHSS development. Maybe the fact of follicle recruitment happens on days 3, 4 and 5 of menstrual cycle, these days though to be more important to prevent OHSS. Further studies involving different COS protocols should be done to confirm our conclusions.

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P-344

Predictors of Embryo Fragmentation and Outcome Following Fragment Removal in IVF. J. C. Skorupski, M. Keltz, D. Stein, K. Bradley. St. Luke's Roosevelt Hospital, New York, NY.

OBJECTIVE: To assess predictors of embryo fragmentation in in vitro fertilization (IVF) as well as to compare cycle outcomes between low grade embryos subjected to defragmentation and high grade embryos not undergoing defragmentation.

DESIGN: A retrospective, case-control trial

MATERIALS AND METHODS: We evaluated age, basal follicle stimulating hormone and estradiol levels, the number of retrieved oocytes and fertilization rates on 327 non-donor, fresh in vitro fertilization cycles. Outcome assessments following defragmentation included rates of implantation, clinical pregnancy, spontaneous abortion and live birth.

RESULTS: Increased age and lower number of oocytes and embryos were associated with embryo fragmentation. Lower grade embryos after defragmentation yielded rates of implantation, clinical pregnancy, live birth, spontaneous abortion and fetal defects equivalent to high grade embryos

CONCLUSION: Fragmented embryos that undergo fragment removal result in equivalent clinical outcomes to high grade, non-defragmented embryos.

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P-345

Predicting Outcomes for Intracytoplasmic Sperm Injection. A. V. Kshirsagar, L. Murthy, L. Chelu, D. Lamb, L. Ross, C. Niederberger. The Department of Urology, The University of Illinois at Chicago, Chicago, IL; Scott Department of Urology, Baylor College of Medicine, Houston, TX.

OBJECTIVE: To predict fertilization in intracytoplasmic sperm injection cases (ICSI).

DESIGN: Fertilization is the desired goal of ICSI and various factors can influence this outcome. We developed models to predict fertilization rate (FR) in ICSI, with the intent to aid the clinical practitioner.

MATERIALS AND METHODS: 528 cases of ICSI cycles from a university center were reviewed. 4 different computational modeling techniques were used to analyze the data. 3 linear based models included logistic regression (LR), linear support vector machine (LSVM) analysis, and radial support vector machine (RSVM) analysis. These were compared to one another and to an artificial neural network (NNET): a nonlinear method of analysis. The methods were modeled using neURON++, a set of C++ programs developed using the Cygwin (Red Hat) GNU C++ port for Windows (Microsoft) distributed across Pentium (Intel) platforms. The optimal architecture for NNET was determined when additional nodes led to overlearning. Reverse regression analysis (RR) using Wilk's Generalized Likelihood Ratio test revealed statistically significant patient variables (p <0.05) in predicting successful fertilization. The cases were randomized to a modeling set of 328 and a cross-validation set of 200 with outcome frequencies preserved in both sets. 3 outcome thresholds were set: if FR > 0% (signifying if any fertilization occurred), if FR ≥ 25%, or if FR ≥50 %. The 4 models were separately evaluated for the ability to predict each of the 3 outcome thresholds: if FR > 0%, if FR ≥ 25%, or if FR ≥50 %.

RESULTS: LR had the highest ROC for predicting if any fertilization would occur (FR > 0%). 2 separate RSVM models had the highest ROC for predicting fertilization rates of ≥ 25% or ≥ 50%, respectively. (Table 1) NNET had the lowest ROC of all the models regardless of which 3 fertilization thresholds it was attempting to predict. The relationship between these ICSI variables and FR is best described in a linear relationship.

Regression analysis identified variables that were statistically significant (p < 0.05) to the model's predictive value including paternal testosterone level, sperm count, total motility, use of microsurgical epididymal sperm extraction (MESA) and whether MESA was fresh or thawed. Other factors that were significant were the presence of antisperm antibodies, what class they belonged to, and the subcellular localization of antibody binding.

Table 1		
Fertilization Rate	Optimal Model	ROC Value
> 0 %	LR	0.849
≥ 25 %	RSVM	0.805
≥ 50%	RSVM	0.869

CONCLUSION: These models provide new insights into the parameters that can impact successful fertilization in ICSI. Linear analysis provided better predictive value than the nonlinear NNET. Use of the LR model can predict the probability if any fertilization will occur. Furthermore, the first RSVM model can predict ≥ 25% and application of the second RSVM model can predict ≥50%. This information can facilitate more accurate planning of the number of cycles needed and will allow patients to be better counseled.

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P-346

Estradiol Level on Day of HCG Does Not Correlate With Pregnancy Rate in GnRH Antagonist IVF-ET Cycles. M. Jurema, A. Blazar. Women and Infants' Hospital, Providence, RI.

OBJECTIVE: Controversy exists regarding the impact of peak estradiol level on pregnancy outcome following IVF-ET using GnRH agonist protocols. In our experience, we have consistently noted a favorable impact of even relatively high levels of estradiol (>3500 pg/mL) on day of HCG on pregnancy rates. The relationship between day of HCG estradiol levels and pregnancy outcome in GnRH antagonist protocols for IVF-ET is much less defined. The purpose of this study was to examine the association between estradiol levels on day of HCG and pregnancy rates in IVF-ET cycles using a GnRH antagonist protocol. This study was conducted during the same time interval that we have observed a beneficial effect of increasing estradiol on GnRH agonist cycle outcome.

DESIGN: Retrospective study.

MATERIALS AND METHODS: A total of 330 IVF-ET cycles were identified as using a GnRH antagonist protocol for prevention of premature luteinization. In general, these patients underwent controlled ovarian hyperstimulation without downregulation using recombinant FSH (range 150 to 600 IU/day) starting on day 2-4 of their menstrual cycles. A daily dose of 0.25mg of a GnRH antagonist was initiated once the lead follicle reached 13-14mm in diameter. HCG (10,000 units) was administered when at least 2 follicles reached 17 mm in diameter and oocyte retrieval was performed 36 hours later. Embryo transfer was performed between days 2 and 6 after retrieval. Data were stratified by intervals of 1000 pg/ml of serum estradiol concentration. The mean patient age, day 3 FSH, cycle number, number of eggs obtained, number of embryos transferred, estradiol level on day of HCG, and pregnancy rates were compared among the estradiol groups. Values are presented as mean ± SD. ANOVA was used to compare the means.

RESULTS: The mean patient age was 37.0 ± 4.1 years, number of IVF cycles was 2.9 ± 1.9, day 3 FSH was 7.8 ± 3.7 IU/L, mean estradiol on HCG day was 1699.3 ± 968.5 pg/mL, number of eggs retrieved per cycle was 10.4 ± 7.3, number of embryos transferred was 2.5 ± 1.2, and the pregnancy rate per retrieval was 21.0 ± 0.4 %. As expected, the mean number of eggs retrieved increased while day 3 FSH decreased significantly (P<.05) with ascending 1000 pg/ml increments of estradiol concentration. However, there were no differences in mean age, cycle number, number of embryos transferred or pregnancy rates among the estradiol groups (Figure 1).

CONCLUSION: Unlike GnRH agonist protocols, the pregnancy rate of