

Premature luteinization in GnRH antagonist cycles in oocyte donors and its relationship to recipients cycle outcome. E. Bosch, E. Pau, J. Crespo, C. Simón, J. Remohí, A. Pellicer. Instituto Valenciano de Infertilidad, Valencia, Spain; Hospital Dr. Peset, Valencia, Spain.

OBJECTIVE: To relate serum Progesterone (P) levels on day of hCG in oocyte donors following ovarian stimulation with a GnRH antagonist with cycle outcome in the correspondent recipients.

DESIGN: Retrospective observational study of prospectively collected material

MATERIALS AND METHODS: Eighty two controlled ovarian hyperstimulation (COH) cycles using a multiple dose GnRH antagonist in 80 altruistic oocyte donors and their correspondent 120 recipient cycles in 118 patients performed in our Institution between June 1st 2003 and December 31st 2003, were included. Serum P was determined on every donor stimulation on day of hCG, and related to recipients cycle outcome in terms of fertilization, implantation and pregnancy rates. Analysis is performed for 3 cut-off values of serum P: 1.0; 1.2 and 1.5 ng/ml. Chi-square and "t" test were employed when appropriate for comparison between groups. The area under the Receiver Operating Characteristic curve (AUC_{ROC}) for serum P on day of hCG was also computed to assess its accuracy to predict the probability of pregnancy. A "p" value <0.05 was considered statistically significant.

RESULTS: Mean donors age was 25.8 ± 4.7 yr. Serum E2 on day of hCG was 1797 ± 855 pg/ml and 17.1 ± 8.7 oocytes were collected. Serum P on day of hCG was 0.8 ± 0.4 ng/ml. The AUC_{ROC} for serum P on day of hCG for predicting pregnancy was 0.49 (CI 95%: 0.37-0.61); p=0.86. Recipients cycle outcome according to serum P cut-off values are shown in Table.

CONCLUSION: Serum P on day of hCG in oocyte donors following COH with GnRH antagonists didn't show statistically significant relationship with recipients cycle outcome, in terms of fertilization, implantation and pregnancy rates. However, there was a trend to a lower pregnancy rate with higher P levels on day of hCG. None of the different cut-off values analysed was able to discriminate the prognosis of the cycle. This finding suggests that the poorer outcome described in GnRH antagonist cycles when premature luteinization is present is probably related to the impact of P raise on the endometrium, rather than on the oocyte or the embryo.

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	Oocyte donation outcome according to serum P the day of hCG					
	P <1.0 ng/ml (n=66d; 94 r)	P ≥1.0 ng/ml (n=16d; 26r)	P <1.2 ng/ml (n=75d; 108r)	P ≥1.2 ng/ml (n=7d; 12r)	P <1.5 ng/ml (n=79d; 113r)	P ≥1.5 ng/ml (n=3d; 7r)
Recipients age	40.4 ± 4.4	38.9 ± 4.0	40.4 ± 4.4	37.9 ± 3.6	40.3 ± 4.3	36.7 ± 4.2*
Endometrial thickness (mm)	7.3 ± 3.7	6.3 ± 4.5	7.2 ± 3.8	6.2 ± 4.7	7.2 ± 3.8	6.9 ± 1.8
Recipients E2 (pg/ml)	212 ± 49	305 ± 178	243 ± 60	137 ± 41	233 ± 57	167 ± 48
Days with HRT	29.5 ± 7.7	29.3 ± 10.6	29.5 ± 7.7	29.3 ± 10.6	29.3 ± 8.3	33.0 ± 8.6
Oocytes recieved	11.3 ± 3.7	11.2 ± 2.5	11.3 ± 3.6	10.6 ± 2.4	11.2 ± 3.5	11.9 ± 2.3
Fertilization (%)	72.2	77.3	73.0	76.6	73.2	76.3
Transferred embryos	1.7 ± 1.0	1.9 ± 0.9	1.7 ± 1.0	2.0 ± 1.0	1.7 ± 1.0	1.6 ± 1.1
Implantation (%)	43.6	35.7	44.3	35.0	44.4	37.5
Pregnancy (%)	61.6	54.6	61.2	50.0	62.2	40.0

Seasonality of spontaneous and IVF pregnancy rates, and temperature/humidity effect on IVF. S. M. Saltz-Greco, J. Schinfeld, S. Somkuti, S. Smith, L. Barmat. ABINGTON MEMORIAL HOSPITAL, Abington, PA.

OBJECTIVE: A seasonal effect on spontaneous pregnancy rates has been observed in the general population. The purpose of this study was to evaluate the fluctuation of pregnancy rates over time in the normal population and in an in-vitro fertilization patient population. A secondary goal was to determine if IVF laboratory temperature and humidity were associated with IVF clinical pregnancy rates.

DESIGN: A retrospective analysis of Abington Memorial Hospital's

obstetrical and operative databases was performed from January 2001 to December 2003. In addition, the Abington Reproductive Medicine/Toll Center for Reproductive Sciences' in vitro fertilization database was retrospectively evaluated for clinical outcomes of fresh and cryopreserved cycles, fertilization rates, and laboratory temperature and humidity levels over the same time period.

MATERIALS AND METHODS: Information assessed included all deliveries and abortions not including elective abortions, as well as fertilization, inner laboratory temperature and humidity, and clinical pregnancy rates. The year was divided into four seasons, three months each. The IVF database was searched for all patients during the study period who had initiated a fresh or cryopreserved IVF cycles. Statistical analysis was completed using SPSS/X software, release 11.5.1 for the statistical analysis. One-way analysis of variance was used to compare frequencies and sample means among seasons. The student t-test was used to compare means for summer and winter IVF pregnancy rates. Means were reported with ± standard deviations.

RESULTS: The sample population consisted of 13,907 deliveries, 1,394 D&Es, and 1,066 IVF pregnancies. Average monthly delivery rates varied by season as follows: summer: 411; spring: 396; fall: 367; and winter: 367 (P=0.003). The IVF pregnancy rate did not significantly vary by season: winter 30.86%, spring 30.56%, fall 29.78%, and summer 24.11%(P=0.35). Miscarriages did not differ according to season with seasonal monthly means as follow: fall: 40; spring: 36; summer: 38; and winter: 41 (P 0.526). Overall, there was a 10% rate of miscarriage per conception regardless of season. Both humidity and temperature variation among seasons was significant (P<0.001) as would be expected, but neither showed a significant relation or affect on IVF pregnancy rates. Mean seasonal temperatures were: fall: 22.2°C; spring: 22.4°C; summer: 22.8°C; and winter: 21.9°C. Humidity average seasonal values were calculated as: fall: 39%; spring: 29%; summer: 54%; and winter: 14%.

CONCLUSION: There does appear to be a seasonal affect on spontaneous pregnancy rates as reflected in the birth rate peak occurring in the summer months. There does not, however, appear to be a seasonal affect on miscarriage or IVF pregnancy rates. Furthermore, our laboratory temperature and humidity values did not significantly alter IVF pregnancy rates. Because of our tight control of reproductive variables in performing in vitro fertilization, seasonality appears not to play a role in IVF success rates. This finding contradicts the obvious seasonal trends displayed in spontaneous pregnancy rates. Perhaps our ability to manipulate temperature, humidity, sperm, and timing of fertilization with in vitro fertilization aids us in manipulating the seasonal fate of reproduction to best benefit our patients regardless of the timing of their reproductive decisions.

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Differential growth of human embryos in vitro: Role of total antioxidant capacity. M. A. Bedaiwy, A. Agarwal, T. M. Said, S. Worley, J. Thornton, T. Falcone. Assuit University, Assuit, Egypt; Cleveland Clinic Foundation, Cleveland, OH.

OBJECTIVE: Pregnancy rates in assisted reproductive technologies are sub-optimal despite substantial technical improvements in the last decade. Better understanding of *in vitro* embryonic growth is of extreme importance as little is known about the biological, biochemical, and metabolic functions of pre-implantation embryos. Recently, the presence of various oxidative/antioxidant systems in a number of reproductive tissues has sparked an interest in studying the relationship of oxidative stress parameters with different aspects of reproduction. The objective of this study was to examine the relationship of early human embryonic development parameters with day 1 culture media total antioxidant capacity (D-1 TAC) levels.

DESIGN: Prospective study.

MATERIALS AND METHODS: Patients undergoing *in vitro* fertilization (IVF; n = 28; 12 with intracytoplasmic sperm injection (ICSI) and 16 without ICSI in 28 cycles) were included. Fertilization and early culture were performed in HTF with 5% serum substitute supplement. D-1 TAC levels in the central well (sample) and the outer well (control) of each embryo culture dish were measured after being thawed using the colorimetric assay (Randox Laboratories, Crumlin, UK). Fertilization rate and em-