

cycle parameters & outcome in patients according to number of prior COH attempts (≤ 2 vs. >2). Ovarian reserve parameters were unrelated to the number of prior COH attempts. After adjusting for BMI, age & number of embryos transferred (ET), patients who had undergone ≤ 2 prior COH cycles were almost five times more likely to achieve a CP (OR 4.7, 95% CI 1.1–20.1) compared to those who underwent >2 attempts.

TABLE 2.

	≤ 2 COH (55/73) [‡]	>2 COH (18/73) [‡]	P
# COH cycles [†]	0.96 \pm 0.9 (0–2) ^δ	3.44 \pm 0.7 (3–5) ^δ	< 0.01
Age [†]	33.07 \pm 2.6	33.33 \pm 2.8	0.71
BMI [†]	22.50 \pm 2.8	25.88 \pm 4.9	< 0.01
Max FSH (mIU/ml) [†]	8.01 \pm 1.7	8.27 \pm 1.3	0.56
CP/cycle start	30/55 (54.6%)	4/18 (22.2%)	0.02
Max E2 (pg/ml) [†]	2204 \pm 1011	2359 \pm 876	0.54
# Amps [†]	30.02 \pm 11.8	33.72 \pm 18.6	0.51
# Eggs [†]	14.87 \pm 7.9	15.56 \pm 7.2	0.52
# Days stimulation [†]	11.61 \pm 1.8	11.69 \pm 2.7	0.61
# ET [†]	2.52 \pm 0.6	2.69 \pm 0.6	0.20

[†]Mean \pm SD, [‡]includes cancelled IVF cycles, ^δ range.

CONCLUSIONS: In patients with UI undergoing their 1st IVF attempt, >2 prior unsuccessful COH cycles are associated with dramatically reduced IVF pregnancy rates. It is possible that >2 COH cycles are detrimental to ovarian reserve; however, deteriorating ovarian reserve over repeat stimulations was not observed, based upon the markers that we measured. The data suggest that 3 or more COH cycles not resulting in pregnancy is a harbinger of poor prognosis not necessarily corrected by IVF.

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THE IMPACT OF THE DURATION OF ESTRADIOL SUPPLEMENTATION AND PEAK SERUM ESTRADIOL ON FROZEN BLASTOCYST-EMBRYO TRANSFER OUTCOME. B. J. Yauger, B. W. Whitcomb, E. D. Levens, S. Hennessy, F. W. Larsen. Walter Reed Army Medical Center ART Program, Washington, DC; Combined Federal Fellowship in Reproductive Endocrinology and Infertility at the National Institutes of Health, Walter Reed Army Medical Center, National Naval Medical Center, and Uniformed Services University of the Health Sciences, Bethesda, MD; Reproductive Biology and Medicine Branch, National Institute of Child Health and Human Development, NIH, Bethesda, MD; Epidemiology Branch, National Institute of Child Health and Human Development, Bethesda, MD; A.R.T. Institute of Washington, Inc., Washington, DC.

OBJECTIVE: Programmed frozen-thawed blastocyst embryo transfers (FBET) using pituitary suppression and exogenous endometrial support demonstrate superior outcomes to natural cycle transfers. Evidence suggests that the duration of estradiol (E₂) administration may be associated with cycle outcome. We set out to examine whether duration and peak E₂ were associated with cryopreserved blastocyst cycle outcome.

DESIGN: Retrospective cohort study.

MATERIALS AND METHODS: After IRB approval, first cycle, programmed FBETs from 01/2000 to 12/2005 were examined. Oral contraceptive pills began on cycle day (CD) 2–3; leuprolide acetate (1 mg/day) began on CD14. Once E₂ <50 pg/mL, endometrial estradiol supplementation (oral \pm vaginal) began and continued until serum E₂ approached 300 pg/mL and a proliferative endometrial stripe was seen. Progesterone (P₄) in oil (50 mg IM daily) began and FBET occurred on the 6th day of P₄. Cycle characteristics and implantation rates were assessed using t-tests and chi-square; generalized estimating equations (GEE) were used for multivariable models.

RESULTS: 176 patients underwent cryopreserved blastocysts transfers. Demographics included maternal age at cryopreservation (32.8 \pm 3.8 yrs), age at transfer (34.1 \pm 4.0 yrs), endometrial thickness at transfer (9.9 \pm 2.1 mm), and blastocysts transferred (2.2 \pm 0.6). Implantation and clinical pregnancy rates were 26.3% and 38.6%, respectively. There were no differences comparing those with implantation to those without implantation regarding days of E₂ supplementation (21.0 \pm 2.4 vs. 20.8 \pm 1.9; *P*=NS) and peak E₂ (695 \pm 792 pg/mL vs. 657 \pm 642 pg/mL; *P*=NS). 71 patients failed to achieve an E₂ ≥ 300 pg/mL, and had a lower implantation rate compared to those with E₂ >300 pg/mL (22.0% vs. 27.7%), though this difference was non-significant. In GEE models, increasing age at embryo cryopreservation was associated with lower implantation (OR 0.93; 95% CI: 0.87, 0.99); no re-

lation was observed between peak E₂ (OR 0.92; 95% CI: 0.68, 1.26) or duration of E₂ therapy (OR 1.05; 95% CI: 0.92, 1.21) and odds of implantation.

CONCLUSIONS: Neither peak E₂ nor duration of E₂ supplementation were significantly associated with implantation, though a decreased implantation rate was observed for women with low peak E₂. As expected, increasing maternal age at blastocyst cryopreservation was associated with lower implantation odds in FBET cycles.

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SPERM PREPARATION TECHNIQUES AND THEIR EFFECT ON SEMEN QUALITY AND ICSI OUTCOME. M. E. Hammadeh, L. EL-Masri, P. Rosenbaum, W. Schmidt, C. Fischer-Hammadeh. Obstetrics & Gynecology, University of Saarland, Homburg/Saar, Germany.

OBJECTIVE: The aims of this study were to compare the recovery rate of viable, morphologically normal spermatozoa with intact DNA from native semen samples of patient undergoing ICSI therapy using either Pure Sperm or Isolate gradients centrifugation and to determine the effect of semen processing on ICSI outcome.

DESIGN: Prospective study.

MATERIALS AND METHODS: 104 patients undergoing ICSI therapy were included in this study. The semen samples were analysed according to WHO guideline. Whereas, strict criteria was used for morphology. The semen samples were processed either with Pure sperm gradient centrifugation (G.1, n = 44) or with Isolate gradient centrifugation (G.2; n = 60). 10 smears were made from each semen sample before and 10 smears after semen preparation for assessment the morphology and DNA integrity after staining with Chromomycin CMA3.

RESULTS: Sperm concentration, motility, morphologically normal and chromatin condensed (Chromomycin staining CMA3) in the native semen samples in G.1 were (8.50 \pm 4.8 mill/ml; 20.39 \pm 12.78%, 4.22 \pm 3.41%; 75.1 \pm 11.3%) which increased after semen preparation into (9.0 \pm 12.8 mill/ml; 52.6 \pm 31.6%; 12.5 \pm 8.9%; 84.9 \pm 15.7% respectively). In the G. II group the mean corresponding values of the native semen samples were (9.32 \pm 5.1 mill/ml; 19.2 \pm 12.4%; 5.8 \pm 3.5% and 74.5 \pm 14.4%) which increased into (21.4 \pm 22.6 mill/ml; 39.6 \pm 31.2%; 9.0 \pm 6.2% and 93.5 \pm 6.2% respectively). A significant difference between the two groups was found after sperm preparation regarding sperm count (*P*=0.013), sperm motility (*P*=0.012), morphology (*P*=0.002) and chromatin condensation (*P*=0.001). However, the mean number of retrieved, fertilized oocytes and pregnancy rate in the G. 1 was (356; 207; 83 and 19.5 \pm 40.0%) and the corresponding value in the Isolate group was (499 (*P*=0.707), 302 (*P*=0.569), and 22.8 \pm 42.0% (*P*=0.699)).

CONCLUSIONS: The Isolate gradient centrifugation increases significantly the semen quality of ICSI patients in comparison to Pure Sperm methods. However, there were no significant differences could be found between both semen processing methods concerning fertilization and pregnancy rates after ICSI.

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COMPARISON OF TWO SYSTEMS TO CULTURE HUMAN EMBRYOS UP TO DAY 3: A PROSPECTIVE RANDOMIZED STUDY. S. Verza, Jr, D. T. Schneider, S. C. Esteves. ANDROFERT-Centro de Referência Para Reprodução Masculina, Campinas, Sao Paulo, Brazil.

OBJECTIVE: The aim of this study was to compare in vitro embryo development up to Day 3 by using two different commercially available culture media intended of human embryos.

DESIGN: Prospective and randomized study.

MATERIALS AND METHODS: A total of 763 metaphase II (MII) oocytes retrieved for intracytoplasmic sperm injection (ICSI) were blindly randomized for culture. After ICSI, the injected oocytes were cultured for three days using two different media, as follows, (i) Global (Global Life, n = 376) and (ii) IVF (Vitrolife, n = 387). The MII oocytes from an individual patient were split equally, microinjected and cultured into the tested media. The proportion of top quality embryo (TQE) on days 2 and 3 were compared. TQE were defined as those presenting with 3–4 and 7–9 equally sized blastomeres on days 2 and 3, respectively, and with grades I or II of cytoplasmic fragmentation.

RESULTS: Normal fertilization after ICSI was not statistically different between groups (72.5 \pm 22.0% and 75.6 \pm 19.9% Global vs. IVF, respectively). However, we found that embryo culture using Global media yielded a higher proportion of top quality embryo on day 2 (77.8% \pm 33.6% vs.

63.4% ± 30.3%, $P=0.01$) and on day 3 (70.1% ± 32.0% vs. 45.8% ± 33.5%, $P<0.01$) in comparison to IVF. In addition, higher cleavage rates were obtained by using Global medium than IVF (98.8% ± 5.0% vs. 93.5% ± 14.7%, $P<0.01$). When only embryos without cytoplasmic fragmentation were compared, there was no difference between both culture media on Day 3 (25.0% ± 30.2% vs. 19.6% ± 27.5%).

CONCLUSIONS: Our data suggest that the proportion of TQE is increased by culturing human zygotes obtained after ICSI with Global media as compared to IVF. This approach may be useful to optimize the number of TQE for transfer and cryopreservation, and it may be specially relevant for the cases in which a low number of mature oocytes is expected.

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P-123

CAN RECOMBINANT HUMAN CHORIONIC GONADOTROPIN (r-hCG) LOWER THE INCIDENCE OF OVARIAN HYPERSTIMULATION SYNDROME (OHSS) IN PCO? S. K. Goswami, S. Ghosh, R. Chattopadhyay, S. Sharma, B. N. Chakravarty. ART, Institute of Reproductive Medicine, Kolkata, West Bengal, India.

OBJECTIVE: OHSS is a common sequel in women having polycystic ovaries undergoing superovulation for ART procedures. The condition becomes worse when the patient is exposed to hCG for final follicular maturation. Several reports have been published suggesting the use of Recombinant hCG in preventing OHSS. In this communication we will present our experience with use of r-hCG and u-hCG in preventing OHSS.

DESIGN: It is a prospective study conducted in Institute of Reproductive Medicine, Kolkata, India from January to June 2006.

MATERIALS AND METHODS: 243 patients were selected from the ART Unit. The women were in the age group 26–34 years, had regular menstrual cycles, BMI between 18–25, FSH <10, and PCO on baseline ultrasonography. All husbands were normospermic. All patients had long protocol ovarian stimulation with r-FSH. Ovarian response was monitored by serial USG Scan and dose of r-FSH was adjusted to get optimum number of follicles. Patients were randomly divided into two groups, Group A ($n = 111$) received 250 mcg r-Hcg and Group B ($n = 132$) received 10,000IU u-Hcg for final follicular maturation. 34–36 hrs after triggering, ovum pick up was performed. Routine IVF was carried out and a maximum of 3 embryos were transferred. Luteal support was maintained with vaginal micronised progesterone.

RESULTS: There were no statistical significant differences between the two study groups regarding patient's age (30.23 ± 3.3 vs. 30.03 ± 3.4; $P=NS$), r-FSH dose (1625 ± 601.8 vs. 1638 ± 646.48; $P=NS$) and days of stimulation (11.66 ± 2 vs. 10.06 ± 1.96; $P=NS$). Number of oocytes retrieved were (7.9 ± 2.9 and 8.6 ± 2.2; $P=NS$) and the number of grade 1 embryos were (3.4 ± 1.1 vs. 3.1 ± 0.97; $P=NS$). Clinical pregnancy rate was 34 (30.6%) in Group A and 39 (29.5%) in Group B. Occurrence of moderate OHSS was similar in both groups, 6 (5.4%) in Group A and 9 (6.8%) in Group B.

CONCLUSIONS: There is no difference in incidence of OHSS between the two groups. However, r-hCG is equivalent to u-hCG in terms of generating good number of Gr-I embryos and clinical pregnancies.

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ASSOCIATION OF BODY MASS INDEX WITH TREATMENT OUTCOMES ON ASSISTED REPRODUCTION TREATMENT IN KOREA. M. J. Yeon, C. W. Park, I. O. Song, M. K. Koong, I. S. Kang. Obstetrics & Gynecology, Cheil General Hospital & Women's Healthcare Center, KwanDong University, School of Medicine, Seoul, Republic of Korea.

OBJECTIVE: Obesity may adversely effect reproduction, but the effects of obesity on assisted reproduction treatment (ART) outcome are controversial. The distribution of body mass index (BMI) in Asians differs from Whites, however, most of the previous studies of the effects of BMI on ART were based on the Whites. We examined the distribution of BMI in Korean women who underwent in vitro fertilization (IVF) and the independent effect of BMI on ART.

DESIGN: A retrospective chart review.

MATERIALS AND METHODS: Seven hundred and eighty five IVF cycles in 702 patients using GnRH agonist long protocols were retrospectively analyzed, and oocyte donation and cryopreserved embryo transfer cycles were excluded. All patients were under age 37 and below FSH 10 mIU/mL. Patients were stratified into three groups according to BMI: "underweight" ($BMI < 18.5 \text{ kg/m}^2$), "normal" ($18.5 \text{ kg/m}^2 \leq BMI < 25 \text{ kg/m}^2$), and "obese" ($BMI \geq 25 \text{ kg/m}^2$).

RESULTS: "Underweight ($BMI = 17.59 \pm 0.07$)" group was 118 cycles (15%), "normal ($BMI = 20.88 \pm 0.06$)" group was 621 cycles (79.1%), and "obese ($BMI = 26.75 \pm 0.18$)" group was 46 cycles (5.9%). The distribution of leading causes of infertility was different among groups. Positive correlation was observed between BMI and incidence of PCOS ($P=0.010$), and negative correlation between BMI and incidence of endometriosis ($P<0.000$). When we compared the three BMI groups for cycle data, there were no significant differences in age, basal serum FSH level, basal serum estradiol level, peak estradiol level, endometrial thickness on hCG day, amount of used gonadotropin, number of retrieved oocytes, fertilization rate, number of transferred embryos, number of good-grade embryos, implantation rate, and clinical pregnancy rate. The duration of ovarian stimulation was significantly different ("underweight" was 10.9 days, "normal" was 11.3 days, and "obese" was 12.2. $P<0.001$). When the effect of cause was controlled, there were also no differences in ovarian stimulation response except duration of ovarian stimulation.

CONCLUSIONS: Our study demonstrated that treatment related cycle fecundity is unaffected by obesity. We conclude that obese women require a longer duration of ovarian stimulation to achieve similar levels of treatment outcome in ART than underweight or normal women.

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ELECTIVE SINGLE BLASTOCYST TRANSFER IN A SELECTED GROUP OF PATIENTS DOES NOT ADVERSELY AFFECT THE PROBABILITY OF CONCEPTION AND REDUCES THE PROBABILITY OF TWIN GESTATION. L. L. Engmann, L. J. Siano, D. W. Schmidt, C. A. Benadiva, D. B. Maier, J. C. Nulsen. Obstetrics & Gynecology, Division of REI, University of Connecticut Health Center, Farmington, CT.

OBJECTIVE: There is concern about the high incidence of twin gestation after IVF especially in young patients. Our standard practice is to transfer 1–2 embryos in women under 38 years of age undergoing their first or second cycle of IVF treatment. The aim of this study was to evaluate whether there are any differences in pregnancy and multiple pregnancy rates after elective transfer of a single blastocyst or two multicellular embryos in patients under 38 years of age who have good prognosis for live birth.

TABLE 1.

	Study group	Control group
Age, years	33.2 ± 2.5	32.8 ± 3.0
Clinical Pregnancy rate, n (%)	14/22 (63.6)	179/285 (62.8)
Ongoing Pregnancy rate, n (%)	12/22 (54.5)	160/285 (56.0)
Implantation rate, n (%)	14/22 (63.6)	264/570 (46.3)
Twins, n (%)	0/12 (0)	66/160 (41.3)
Triplets, n (%)	0/12 (0)	1/160 (0.6)

* $P<0.01$.

DESIGN: Retrospective comparative study at a tertiary university center.

MATERIALS AND METHODS: We analyzed data from 307 patients who underwent elective transfer of either a single blastocyst on day 5 (Study group, $n = 22$) or two multicellular embryos on day 3 (Control group, $n = 285$) between January 2005 and December 2006. In order to have a single embryo transfer, the study group had to fulfill our laboratory criteria for blastocyst transfer: ≥ 3 embryos with ≥ 7 blastomeres on day 3. The control group consisted of patients who fulfilled the criteria for blastocyst transfer and had extra embryos to cryopreserve, but elected to transfer two multicellular embryos on day 3. The patients underwent controlled ovarian stimulation and oocyte retrieval followed by embryo transfer. Both groups received IM progesterone 50 mg daily for luteal support. The chi-square test and t-test were used for categorical and continuous variables respectively.

RESULTS: There were no differences between the two groups in the age, baseline FSH, number of oocytes retrieved and fertilization rate. There were also no differences between the two groups in the clinical or ongoing pregnancy rates (Table 1). The multiple pregnancy rate was significantly higher in the control compared with the study group (67/160, 41.9% vs. 0/12, 0%, $P<0.01$).

CONCLUSIONS: In our program, the ongoing pregnancy rate in patients with good prognosis who had elective single blastocyst transfer was comparable to double multicellular embryo transfer. Single blastocyst transfer should therefore be encouraged in young patients with good prognosis to reduce the probability of twin gestation.

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