



Conclusion: There was no change in pregnancy outcome for maxFSH cut off values >10 to >15. Traditional FSH cut off >10 mIU/ml may be too restrictive and exclude a significant number of successful IVF outcomes.

P-6

A Prospective Randomized Study Comparing Pregnancy Rates and Implantation Rates when Embryos are Selected Based on a Graduated Embryo Score (GES) Vs. a Single Day 3 (D.3) Score. D. Kotze, E. Snowden. SIRM Sacramento, Sacramento, CA.

Background and Significance: Evaluating the morphological characteristics of embryos prior to transfer is routinely done in IVF programs. An embryo scoring system based on a Graduated Embryo Score (GES) predicted blastocyst formation and pregnancy rates (Fisch et. al. Human Reprod 2001; 16:1970-5). There are no published reports comparing pregnancy rates and implantation rates when embryos are scored by the GES scoring method vs. a single observation of the embryo on day 3 (D.3).

Objectives: To compare pregnancy rates and implantation rates when embryos are selected based on a GES score vs. a single D.3 score.

Materials and Methods: A prospective randomized pilot study was conducted. In the GES scoring method, a score was given to each embryo based on the alignment of the nucleoli at the 2-pronuclear (2PN) stage, early cleavage (i.e. cleaved or not cleaved at 26 hours after ICSI) and the number of blastomeres and the extent of fragmentation on D.3. The GES score (maximum 100 points/embryo) was obtained by adding the individual score from these three observations. The D.3 score (maximum 10 points/embryo) was based on the number of blastomeres and the extent of fragmentation on D.3. Patients were randomized at the time of oocyte retrieval to receive embryos based on a GES score or a D.3 score. Patients were treated by the same physician. A human derived gonadotropin (Bravelle®; Ferring Pharmaceuticals Inc, Suffern, NY) was used in all patients. Patients received ICSI and embryos were cultured individually in 50 µl droplets. The same embryologist did the scoring of all embryos. Embryos with the highest GES or D.3 scores were transferred on D.3. Analysis of variance (ANOVA) and Chi-square tests were used for comparisons.

Results: Fifty-eight patients were included, 27 received embryos scored by the GES scoring method and 31 received embryos scored by the D.3 scoring method. There were no significant differences between the two groups. The results are shown in the table below.

Parameter	GES score (n=27)	D.3 score (n=31)	P-value
Age	34.8 ± 3.6	33.8 ± 6.1	P>0.05
Weight	165.3 ± 44.0	170.2 ± 50.0	P>0.05
Total no. oocytes	14.9 ± 7.0	13.0 ± 7.4	P>0.05
Mature oocytes	10.1 ± 5.1	8.8 ± 5.5	P>0.05
No. oocytes fertilized	9.6 ± 5.2	7.9 ± 3.8	P>0.05
Total no. embryos	8.9 ± 5.1	7.3 ± 3.5	P>0.05
No. embryos transferred	3.7 ± 0.8	3.7 ± 1.2	P>0.05
Chemical pregnancies (%)	63	61	P>0.05
Clinical pregnancies (%)	63	61	P>0.05
Continuing pregnancies (%)	44	52	P>0.05
Implantation rate (%)	23	20	P>0.05

Data expressed as means ± SD or %.

Conclusion: No differences were observed in pregnancy rates and implantation rates whether embryos were selected using the GES scoring method or the day 3 scoring method.

P-7

Assisted Hatching is Associated with a Higher Ectopic Pregnancy Rate. S.H. Jun, A.A. Milki. Stanford University Medical Center, Stanford, CA.

Background and Significance: Ectopic pregnancies can occur after IVF-ET from direct injection or migration of embryos into the fallopian tube. Embryos that have undergone AH have been reported to implant earlier compared to non-hatched embryos. (Liu et al. Fertil Steril 1993) Thus, theoretically, AH could potentially increase the occurrence of ectopic pregnancies by enhancing early implantation at a time when embryos that have reached the fallopian tube have not had a chance to return to the uterus.

Objective: The purpose of this study is to examine whether AH impacts the incidence of ectopic pregnancy after IVF-ET.

Materials and Methods: The incidence of ectopic pregnancy with day 3 transfers was examined in relation to whether or not AH was performed. Indications for AH were age ≥40, FSH ≥ 12mIU/mL or ≥ 2 previous failed IVF cycles. Embryo transfer was performed with a Tefcat catheter (Cook Ob/Gyn) 1 to 1.5 cm short of the fundus by abdominal ultrasound guidance. Ectopic pregnancies were diagnosed by ultrasound or laparoscopic visualization of a gestational sac in the fallopian tube or by the absence of a gestational sac in the uterus and rising βhCG levels following the failure of suction D&C to reveal products of conception. Assisted hatching was performed by creating a small hole (<20 µm) using acidified Tyrode's solution (pH 2.3) in an area of the zona pellucida that was between blastomeres.

Results: Table 1.

	AH	No AH	P-value
Ectopic/clinical pregnancy	14/258 (5.4%)	8/365 (2.2%)	<0.03
Mean age	37.6 ± 4.1	37.8 ± 5.3	NS
Tubal disease	23%	21%	NS

Conclusions: Our data suggest that AH increases the likelihood of ectopic pregnancy. Although patients undergoing AH represent a different subgroup of the IVF population, there is no reason to believe that the indication for AH presents a selection bias which predisposes to ectopic pregnancy. It is possible that, after ET, some IVF embryos migrate to the fallopian tubes and back into the uterus. Embryos that have undergone AH may hatch out of the zona pellucida and implant earlier than their non-hatched counterparts, and thus possibly implant in the fallopian tube before reentering the uterine cavity. The findings of our study should generate an interest to examine the relationship between AH and ectopic pregnancy in larger multi-center series.

P-8

Elective Transfer of Two Embryos on Day 3 in Good Prognosis Patients Reduces Triplet Rate without Detectable Compromise of Pregnancy

Rate. V.L. Baker, M. Gvakharia, G.D. Adamson. Fertility Physicians of Northern California, San Jose and Palo Alto, CA.

Background and Significance: Reducing the risk of multiple pregnancy, particularly high order multiple pregnancy, is an important challenge to address. Blastocyst transfer of 2 embryos is one option that has been suggested to reduce the risk of high order multiples. However, blastocyst culture has been associated with a higher risk of monozygotic twinning, particularly in a setting in which both transferred embryos have implanted and triplets result.

Objective: We report our experience with elective transfer of 2 embryos on day 3 of culture.

Materials and Methods: All cycles with elective transfer of 2 embryos in our program from May 2001 until August 2003 are reported. During this time, we recommended transfer of 2 embryos in women under 35 and in couples undergoing egg donation who had embryos available for cryopreservation. For comparison, couples who chose to transfer 3 or more embryos are included in the table below. Embryos were assessed by cell number and by grade (Grade <10% fragmentation, Grade 2=10–25% fragmentation, Grade 3=26–50% fragmentation, Grade 4>50% fragmentation). Clinical pregnancy rate with heartbeat per retrieval is reported.

Results: One hundred sixty-four cycles with elective transfer of 2 embryos are included. With elective transfer of 2 embryos, the clinical pregnancy rate with heartbeat/retrieval was 36% for women under 35 and 59% for egg donor recipients. There were no triplets with elective day 3 transfer of 2 embryos.

Conclusions: Elective day 3 transfer of 2 embryos in patients with good prognosis yields acceptably good pregnancy rates. The risk of monozygotic twinning and triplets appears to be lower with day 3 transfer of 2 embryos compared with the rates reported in the literature with blastocyst transfer.

P-9

New Immunomodulatory Treatment for Infertile Men with Antisperm Antibodies. I. Bubanovic, N. Stevo, K. Slobodan. Medica Center, Serbia and Montenegro

Objective: Possible causes of subfertility or infertility in humans as well as in other species are poorly defined, but one important category may be immunological disease mediated by antisperm antibodies (ASA). In this study, blood sera from 35 infertile men of different age with ASA positive ELISA test were examined for the serum level of ASA before and after treatments with 1,25-dihydroxy-Vitamin-D3 and Dexamethasone.

Design: Controlled clinical study.

Setting: An academic setting.

Patient(s): We observed 18 infertile men treated with Vitamin-D3/Dexamethasone protocol during three months, 9 infertile men treated with Dexamethasone only during three months and 8 infertile men without any treatment. All selected patients showed poor parameters of spermogram and high level of ASA serum concentration (>75 U/ml).

Results: Serum concentration of ASA in non-treated group (312.6 U/ml), Dexamethasone only treated group (288.0) and Vitamin-D3/Dexamethasone treated group (123.6 U/ml) are significantly different. Serum level of ASA in Vitamin-D3/Dexamethasone treated group was significant less as compared to the level before the treatment ($P<0.01$).

Conclusion(s): Vitamin D3 and Dexamethasone treatment probably have suppressive effects in relation to antibody production, co-stimulatory molecules expression, immune cells communications and profile of cytokine network. Because the protocol is completely new, this is the first study of Vitamin D3 and Dexamethasone treatment concerning the suppression of ASA production.

P-10

Acupuncture & IVF Poor Responders: A Cure? P.C. Magarelli, D.K. Cridennda. Reproductive Medicine & Fertility Center, Colorado Springs, CO.

Background and Significance: The utility of acupuncture in the treatment of infertility has been demonstrated in two controlled studies. The first study determined the effect of reducing the Pulsatility Index (PI) of the uterine artery on reproductive outcomes; the second study described a Pre/Post

embryo transfer protocol that enhanced overall pregnancy rates (PR). There are no studies that have utilized both techniques.

Objective: The purpose of the study was to determine the influence of these two acupuncture protocols on IVF outcomes and secondly to identify the appropriate patient groups that would most benefit from this adjunctive therapy.

Materials and Methods: In this retrospective study, data was extracted from medical records of patients RE&I clinic & acupuncture clinics between January 2001 and November 2003. All patients completing an IVF cycle with transfer were included. One RE&I provided the IVF care and a consortium of acupuncturists overseen by the author provided the strict acupuncture protocols. PR per transfer were the endpoints measured. Data was analyzed by student's t test and Multiregression with Wilcox ranking (MRW).

Results: 147 patients were included in the study and of those 53 had Acupuncture (Ac) and 94 did not (Non-Ac group). Demographic data between these Ac and Non-Ac groups respectively indicated remarkable equity (Table 1). Fertility Factors also demonstrated equity and there were no differences in Diagnoses, IVF Protocols and type of Gonadotrophin protocols used.

Factors that demonstrated significance were: Length of time infertile, Peak FSH, PI for total group without MRW; PI for MRW groups reversed this (Table 2) and finally average: Sperm Morphology, Peak E2, Peak P4 prior to HcG: and endometrial thickness.

PR before Wilcox ranking were the same: 40% v 38%. MRW analysis revealed FSH, Length of time trying to get pregnant, Sperm Morphology and E2 levels as significant: 6.5, 4.1, 4.0 and 1.6 respectively. When the Ac group was modified (15 Ac patient dropped), PI was elevated from 1.76 to 1.94 resulting in a significant elevation compared to the Non-Ac group, $p < 0.01$. Also PR changed from 40% before to 53% after and this value was significantly greater than the Non-Ac group (38%), $p < 0.01$.

Conclusions: Significant increases in pregnancy outcomes were confirmed by this study and the data uniquely supported the advantage of acupuncture in patients with normal PI (prior studies were done on patient with $PI > 3$). We also demonstrated that both acupuncture treatment protocols could be used together with a synergistic effect. Finally, this study is the first to demonstrate that the use of acupuncture in patients with poor prognoses (elevated Peak FSH, longer history of infertility, poor sperm morphology) can achieve similar pregnancy rates to normal prognosis patients.

P-11

Advantages of the Use of the Non-Contact Laser in the Preimplantation Genetic Diagnosis. V. Ivankhenko, C. Tran, T. Tan, B. Behr. Huntington Reproductive Center, Pasadena, CA.

Background: Biopsy of single cells from developing embryos is one of the steps of the Preimplantation Genetic Diagnosis (PGD) procedure. Chemical opening by acidified Tyrode's solution and mechanical zona dissection (PZD) can lack precision and reproducibility because of the different skills among embryologists. The use of a laser in PGD provides a more precise and controlled opening from embryo to embryo and between operators.

Objective: A retrospective study was undertaken to assess the non-contact 1.48-micron infrared diode laser as a more efficient and potentially less traumatic method of opening the zonae pellucida of human embryos for the purpose of blastomere biopsy.

Methods: Blastocyst formation and pregnancy rates were retrospectively compared between two groups of consenting patients who underwent PGD by laser dissection (LD) ($n=79$) or mechanically by needle (PZD) ($n=30$). Embryos of both (LD) ($n=760$) and (PZD) ($n=234$) groups were cultured for 3 days in PI before the blastomere biopsy and after biopsy until day 5 in Blastocyst medium both supplemented with 10% Synthetic Serum Substitute (SSS). Biopsies were performed in modified HTF with %10 SSS. (Irvine Scientific, Santa Ana, CA). The laser opening of the zonae pellucida was performed on a Diaphot inverted microscope (Nikon) equipped with the non-contact 1.48-micron infrared diode ZILOS (Hamilton Biosciences Research, Beverly, MA). Zona pellucida was subjected to laser dissection at a point most distant from targeted blastomeres in order to avoid potential thermal effects of the laser beam. One to two pulses of laser 135–145 mW (2.0 msec) each were fired to create an opening of 20–30 microns. Mechanical opening was produced with a glass needle by creating two inter-