OBJECTIVE: To study whether patients with at least four good quality embryos on day 3 would benefit in terms of pregnancy rate, from an extension of culture to day 5, and eventually from undergoing a blastocyst stage embryo transfer.

DESIGN: Prospective randomized controlled trial.

MATERIALS AND METHODS: Between January 2001 and November 2003, 301 patients seeking infertility treatment were assessed eligible (female age ≤37 years; rank trial ≤3; FSH on day 3 of the cycle ≤12; ejaculated sperm origin; equal number (n=2) embryos transferred in each group) for participating in the study. Overall, 164 patients fulfilled the criteria on the third day of embryo-culture and were randomized to have either a cleavage stage embryo transfer (D3 group, n=84) or a blastocyst stage embryo transfer (D5 group, n=80). Good quality embryos were defined as having minimum 6 cells in the morning of day 3 with maximum 20% of anucleate fragments. Multifollicular ovarian stimulation (multi-FOS) was performed with a GnRH-agonist protocol in 44% of the patients, whereas in the remaining 56% of the patients a GnRH-antagonist protocol was used. An ongoing pregnancy was defined as each pregnancy showing a positive heart beat at ultrasound after 12 weeks of gestation. Fisher's exact test was used to analyse nominal variables while continuous variables were compared using independent Student's t-test or Mann Whitney test. Analysis was by intension to treat.

RESULTS: The two groups were comparable with regard the age, the infertility aetiology, the stimulation protocol used, the duration of stimulation and the number of gonadotrophins administered. All patients in both groups had embryo transfer. Both clinical pregnancy rate (52.5% vs 32.1%; OR: 2.33, 95%CI: 1.23-4.40) and ongoing pregnancy rate (51.3% vs. 27.4%; OR: 1.45-5.34) were significantly higher in the D5 group compared to the D3 group, respectively. Similarly, implantation rate (27.4%; OR: 2.33, 95%CI: 1.23-4.40) and ongoing pregnancy rate (51.3% vs. 37.8%; p<0.001) was achieved in both groups. A high (42.9%) initial multiple pregnancy rate in blastocyst group (compared with 29.6% in D3 group) resulted in more than one third of the ongoing pregnancies after Day 5 transfer being twins (36.8%).

CONCLUSION: The threshold of four good embryos on the third day of embryo culture appears to be reassuring criterion that the patient will undergo an embryo transfer at day 5 and moreover will have a higher chance of achieving an ongoing pregnancy compared to day 3 transfer. The reason for the higher success rate with blastocysts might mainly be due to a selection process (a high proportion of morphologically top quality embryos on day 3 of culture will be chromosomically abnormal). However, as a result of the high implantation potential, blastocyst transfer in selected patients may lead to an unacceptable high rate of multiple pregnancies. Therefore, it appears that reducing high order pregnancies without compromising pregnancy outcome, by implementing single blastocyst transfer in a population similar to the one involved in the present study, is a realistic goal.

Supported by: This work has been supported by grants from the FWO Vlaanderen and Vrije Universiteit Brussel.

Monday, October 17, 2005

4:00 p.m.

O-122


OBJECTIVE: To determine whether antibiotic prophylactics at the time of embryo transfer increases the likelihood of achieving a pregnancy (Light growth OR 0.69, moderate growth OR 0.63, heavy growth OR 0.51). 147 patients had co-amoxiclav (group 1) and 130 did not (group 2).

RESULTS: There was no statistical difference in contamination rates of the catheter tip (52.3% group 1 vs 61.5% group 2), or pregnancy rates in the two groups (46.3% group 1 vs 43.8% group 2). The presence of gram-negative bacteria did not have a statistical impact on the likelihood of achieving a pregnancy (45.4% group 1 vs 51.7% group 2), but the presence of a severe gram-positive infection was associated with a significant reduction in the likelihood of achieving a pregnancy (Light growth OR 0.69, moderate growth OR 0.63, heavy growth OR 0.33 (P=0.047)).

CONCLUSION: This study does not support the hypothesis that routine antibiotic prophylactics at the time of embryo transfer increases the likelihood of a successful pregnancy outcome. Even the presence of gram-negative bacterial contamination did not reduce the pregnancy rate significantly but a heavy bacterial contamination with gram-positive organisms did. However identification of these women at the time of embryo transfer is difficult.

Supported by: None

Monday, October 17, 2005

4:30 p.m.

O-124


OBJECTIVE: Embryo transfer is considered as the most crucial step in IVF/ICSI cycles. The amount of high quality literature concerning ultrasound guidance during embryo transfer is both limited and conflicting.

DESIGN: Systematic review and meta-analysis of randomized, controlled trials comparing US-guided ET with clinical touch ET.

MATERIALS AND METHODS: A computerized search was conducted using MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials (CENTRAL) on the Cochrane Library Issue 2, 2005, the National Research Register (NRR) and the Medical Research Council’s Clinical Ultrasound Database.

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S52 Abstracts

Vol. 84, Suppl 1, September 2005

Monday, October 17, 2005
4:45 p.m.

O-125

The Success in IVF When Utilizing Autologous Endometrial Coculture (AECC) is not Secondary to a Local Endometrial Injury. S. D. Sandorfer, Y. Delgado, J. Park, R. Clark, Z. Rosenwaks. Cornell University Medical Center, New York, NY; Flushing Hospital, Flushing, NY.

OBJECTIVE: The success after IVF depends on many factors. We have developed a unique coculture system utilizing the patient’s own endometrial cells and successfully applied this to our clinical IVF-ET program (J Rep Med, 2004). Previous work has suggested that an endometrial biopsy in the cycle prior to IVF is associated with a doubling of IVF success rate (Fertil Steril 79: 1317). This has prompted us to speculate that our success with AECC may be secondary to a local endometrial injury effect specifically limited to those patients undergoing a biopsy in the cycle prior to their IVF cycle.

DESIGN: Retrospective analysis of 665 consecutive IVF cycles utilizing AECC comparing outcome and effectiveness of AECC based on performing an endometrial biopsy in the cycle prior to IVF or at a time before this (at least 2 cycles before the IVF cycle).

MATERIALS AND METHODS: Embryos from each of 665 patients allocated to growth on AECC were analyzed for outcome. All patients had previously undergone failed IVF cycles. During a luteal phase biopsy (5-12 days after LH surge) made prior to the treatment cycle, glandular (G) and stromal (S) endometrial cells were isolated by enzymatic digestion and separated based on differential sedimentation rates. These cells were cryopreserved, then plated as a 50%/50% combination of G and S cells prior to the endometrial biopsy in the immediate menstrual cycle preceding the IVF cycle or at a time before this (at least 2 cycles before the IVF cycle).

RESULTS: The mean age of the patients was 37.02 (± 3.8) years with an average number of 3.1 (± 0.8) failed IVF cycles. Embryos grown on AECC demonstrated a significant improvement in number of blastomeres and fragmentation when compared to embryos grown in conventional media without AECC (5.9 ± 1.0 vs. 4.7 ± 1.1 blastomeres and 7.2 frag; P < 0.001). Nineteen of the patients (19/665; 2.86%) did not have a transfer. An overall pregnancy rate of 51.9% and an overall clinical pregnancy rate of 42.1% were found per patient.