

a search of the English literature was performed using Pubmed for deep vein thrombosis in ovarian hyperstimulation syndrome.

**RESULTS:** The reported incidence of upper extremity DVT associated with ART is 0.08 to 0.11%. It is more common if OHSS occurs (71%) although few cases have been reported without OHSS (29%) post ART. Almost half of cases are in patients with thrombophilia not previously diagnosed. The occurrence is at approximately 7 weeks gestation in most cases, although there are some cases occurring at ten weeks gestation and after resolution of OHSS. The commonest site of upper extremity thrombosis associated with ART is the internal jugular vein (81%) and the majority of these cases are not due to central venous catheters. Thrombosis (36%) and thrombus extension (14%) can occur despite anticoagulation.

**CONCLUSIONS:** Upper extremity DVT in patients with OHSS is more common than previously thought. Most cases present at 7 wks gestation. Women who develop OHSS are likely to benefit from DVT prophylaxis with aspirin and heparin up to 10 weeks gestation, however prospective studies are needed to make strong recommendations on management. Patients who develop thromboembolism post ART should be screened for thrombophilias.

*Supported by:* None.

## A-20

**EFFECT OF DELAYED OOCYTE DENUDATION ON SURVIVAL, FERTILIZATION AND EMBRYO QUALITY: A RANDOMIZED CONTROLLED TRIAL.** Y. Dajani, I. Aboufotouh, S. Khattab, H. Al-Inany. Misr International IVF-ET Center, Cairo, Egypt; Cairo University, Cairo, Egypt.

**OBJECTIVE:** During the intracytoplasmic sperm injection (ICSI) procedure, the collected oocytes are denuded of the surrounding cumulus and corona cells and incubated until just before ICSI. The optimal time for denudation has been arbitrarily chosen to be one hour post pick-up, but recent studies have shown a possible preferable effect of a longer incubation. To clarify the effect of preincubation of oocytes on oocyte nuclear maturity, fertilization, and embryo cleavage prior to intracytoplasmic sperm injection (ICSI), we performed this prospective, randomized study using sister oocytes.

**DESIGN:** Prospective randomised study.

**MATERIALS AND METHODS:** All patients underwent a long stimulation protocol of GnRH agonist therapy followed by hMG administration, hCG for final oocyte maturation and transvaginal oocyte recovery. The retrieved oocytes from each couple were randomized to either denudation 36 hours post hCG (Group 1) or 39 hours post hCG (Group 2), ICSI was offered for all oocytes between 39.5- 40.5 hours post hCG to avoid any post cytoplasmic maturation referred to many previous studies. The outcome measures were the oocyte fertilization rate, assessment on day 2, 3 and 5 post pick-up.

**RESULTS:** Since this study was performed on sister oocytes, the patient demographics and ovarian stimulation profile are identical between the two groups. Following pick-up, the randomized oocytes demonstrated similar fertilization and fragmentation rates in the two groups. In addition, the assessment of embryo development and quality were also not significantly different.

**CONCLUSIONS:** In patients undergoing ICSI there seems to be no significant differences between early versus delayed oocyte denudation with both times showing promising results.

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## A-22

**DAY 3 EMBRYO MORPHOLOGY IS A PREDICTOR OF LIVE BIRTH BUT NOT MISCARRIAGE AFTER IN VITRO FERTILIZATION TREATMENT.** B. A. Malizia, M. R. Hacker, J. Witmyer, A. S. Penzias. Reproductive Endocrinology and Infertility, Beth Israel Deaconess Medical Center, Boston, MA; Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Boston, MA; Reproductive Endocrinology and Infertility, Women and Infants' Hospital, Providence, RI; Beth Israel Deaconess Medical Center & Boston IVF, Boston, MA.

**OBJECTIVE:** Despite the common practice of assessing embryo morphology before transferring day 3 embryos after in vitro fertilization (IVF), little data exists on embryo characteristics as they relate to cycle outcome.

**DESIGN:** Retrospective cohort study.

**MATERIALS AND METHODS:** All women who underwent standard protocol IVF and transfer of a single embryo (non-elective) on day 3 from

2000 through 2005 were included. Pregnancy was documented by beta-human chorionic gonadotropin level and pregnancy outcome was obtained. Miscarriage includes both biochemical and clinical losses. Multivariate regression controlling for patient age was used to calculate risk ratios (RR) and 95% confidence intervals (CI).

**RESULTS:** A total of 1,183 women met inclusion criteria. Compared with 8-cell embryos, embryos of 4, 5 or 6 cells were statistically significantly less likely to result in pregnancy, while those of 7, 9 or 10 cells were equally as likely to result in pregnancy. There was no difference in the risk of miscarriage relative to cell number (all *p* values >0.2). Grade 3 embryos were twice as likely to result in a pregnancy (RR: 2.0; CI: 1.4-2.8) or live birth (RR: 2.1; CI: 1.3-3.3) compared with grades 1 and 2 combined, but there was no difference in risk of miscarriage (RR: 0.9; CI: 0.6-1.4). Table 1 shows the risk of live birth and miscarriage when combining both morphology parameters. The transfer of 8-cell, grade 3 embryos was equally or significantly more likely to result in a live birth compared with other embryo morphology. Among women with a chemical pregnancy, the risk of miscarriage with an 8-cell, grade 3 embryo was less than or equal to the risk associated with other embryo morphology.

TABLE 1. Risk of live birth and miscarriage relative to embryo morphology

Morphology	N	Live Birth (RR)	Live Birth (95% CI)	Miscarriage (RR)	Miscarriage (95% CI)
6 cell, grade 2	91	0.4	0.18-0.96	1.1	0.48-2.51
6 cell, grade 3	148	0.7	0.38-1.20	0.6	0.23-1.56
7 cell, grade 2	63	0.1	0.01-0.74	2.0	1.14-3.59
7 cell, grade 3	133	1.0	0.50-1.64	1.2	0.67-1.96
8 cell, grade 2	61	0.5	0.21-1.26	1.3	0.57-2.83
8 cell, grade 3	230	Ref	Ref	Ref	Ref

**CONCLUSIONS:** This study shows a benefit to the transfer of 8-cell grade 3 embryos on day 3 over other grades and cell numbers. However, once pregnancy is established, we did not detect a statistically significant difference in the risk of loss based on embryo morphology.

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## A-23

**GLYCODELIN IN ENDOMETRIAL FLUSHING FLUID AND ENDOMETRIAL BIOPSIES FROM INFERTILE AND FERTILE WOMEN, AND THEIR RELATION TO PREGNANCY AFTER IVF.** U. Bentin-Ley, A. Lindhard, V. Ravn, H. Islin, S. Soerensen. Danish Fertility Clinic, Frederiksberg, Denmark; Fertility Clinic, Roskilde Hospital, Roskilde, Denmark; Pathology, Herlev University Hospital, Herlev, Denmark; Clinical Biochemistry, Hvidovre University Hospital, Hvidovre, Denmark.

**OBJECTIVE:** To investigate glycodelin levels in endometrial flushing fluids and biopsies in fertile and infertile women prior to IVF treatment.

**DESIGN:** Prospective observational study.

**MATERIALS AND METHODS:** Patients: 75 infertile and 21 fertile women. All women were between 25 and 38 years of age, and had a normal body mass index (BMI) (19-26 kg/m<sup>2</sup>), regular periods (21-35 days), cigarette smoking < 10 cigarettes daily, and no hormonal treatments in the last 3 cycles before inclusion. The infertile patients were categorized into the following groups: tubal factor group (25 women with tubal factor infertility without hydrosalpinges, 18 women with hydrosalpinges present, 17 women after salpingectomy) unexplained infertility (15 women with normal plasma FSH, LH, prolactin and TSH on cycle day 2-5 and a normal HSG) and fertile reference group (21 women with a history of having delivered at least one child and no recurrent spontaneous abortions). The women were investigated twice in one cycle: Day LH+1: endometrial flushing. Day LH+7: endometrial flushing, endometrial biopsy and plasma glycodelin. Main outcome measures: Glycodelin levels in endometrial flushing fluids, biopsies and plasma, compared to endometrial dating and IVF outcome.

**RESULTS:** Glycodelin levels in endometrial flushing fluids and biopsies at day LH+7 depended on endometrial dating, whereas day LH+1 flushing levels were independent. Infertile women demonstrated higher flushing levels than fertile women at day LH+1. Women conceiving after IVF had higher glycodelin levels than non-pregnant fertile women. Logistic regression analysis showed that the day LH+1 glycodelin levels were on the limit of being significant (*p*=0.05). Glycodelin in plasma had no predictive value. We found significant differences in protein concentrations in flushing fluids at day LH+1; levels being higher in flushing fluids from delayed endometria.