

mal fetuses (study group) and those whose fetuses were karyotypically normal (control group). Study parameters included patient's age, parity, gravidity, fetal karyotype, cycle type, serum prolactin and TSH values, and early follicular serum FSH, LH, and estradiol levels. In cases of recurrent spontaneous abortion, patients were tested for the presence of serum antiphospholipid antibodies. In addition, patients were divided based on whether their their day 3 FSH values were abnormal ( $\geq 15$  mIU/ml).

**Results:** Abnormal fetal karyotypes were detected in 26 of 64 specimens: 16 trisomies, 4 mosaics, 3 triploidy, 2 monosomy XO, and one balanced translocation. There was no significant difference with respect to parity (range: 0 to 1 and 0 to 3), gravidity (range: 0 to 5 and 0 to 8), mean maternal age ( $36.5 \pm 3.06$  and  $37.5 \pm 3.70$ ), mean paternal age ( $38.1 \pm 3.39$  and  $40.5 \pm 5.90$ ), mean LH ( $13.3$  mIU/ml  $\pm 14.43$  and  $8.2$  mIU/ml  $\pm 4.69$ ), mean estradiol ( $34.2$  pg/ml  $\pm 13.58$  and  $28.4$  pg/ml  $\pm 6.80$ ), mean prolactin ( $13.1$  ng/ml  $\pm 6.46$  and  $10.2$  ng/ml  $\pm 3.85$ ), and mean TSH ( $1.4$   $\mu$ IU/ml  $\pm 0.53$  and  $7.7$   $\mu$ IU/ml  $\pm 10.68$ ) values between the karyotypically abnormal and the karyotypically normal groups, respectively. FSH values were available in 15 of 26 patients with abnormal fetal karyotype and 23 of 38 patients with normal fetal karyotype. The mean FSH values were higher in patients with karyotypically abnormal fetuses ( $19.0$  mIU/ml  $\pm 11.33$ ) compared to the patients with normal fetal karyotype ( $11.43$  mIU/ml  $\pm 3.63$ ), however, this difference did not reach statistical significance ( $p < 0.13$ ). A significantly greater proportion of women with karyotypically abnormal fetuses had FSH values  $\geq 15$  mIU/ml (9 of 15) compared to the control group (6 of 23,  $p < 0.036$ ).

**Conclusion:** The association between advanced maternal age and increased risk of fetal aneuploidy is well known. It is possible that biological age as well as chronological age may predict fetal aneuploidy. If these conclusions are substantiated by subsequent studies, routine FSH screening may prove beneficial as a preconceptual predictor for the occurrence of a karyotypically abnormal fetus.

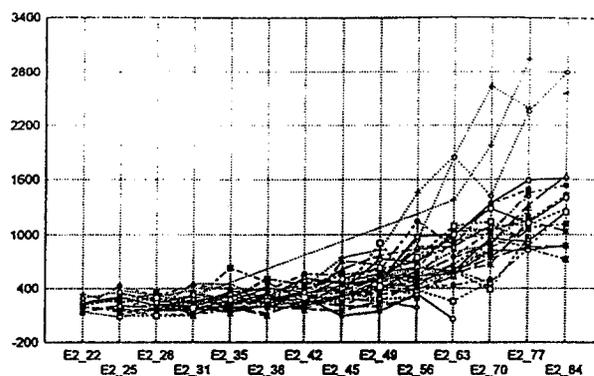
## P-122

**Lutealplacental Shift in Pregnancy After Frozen Embryo Transfer.** S. D. Spandorfer, A. Kowalik, P. H. Chung. The Center for Reproductive Medicine and Infertility. The NY Hospital-Cornell Medical Center, New York, NY.

**Objective:** Previous work investigating the timing of the lutealplacental shift have involved donor recipients of fresh embryos. The purpose of this study is to evaluate the onset of placental steroidogenesis in pregnancies after frozen embryo transfer (FET).

**Design:** Retrospective study.

**Materials and Methods:** 39 patients with a documented singleton pregnancy from a FET were included in the study. After pituitary downregulation with leuprolide acetate, all patients were given hormonal replacement consisting of transdermal E2 and intramuscular injections of Progesterone (P) in an attempt to approximate normal physiologic conditions. After transfer of the cryopreserved



embryos these medications were continued at a constant amount until 12 weeks of gestation. These patients underwent twice weekly hormonal evaluations of E2 and P. Hormonal measurements were made by commercial RIA. Based on the overall configuration of the E2 curve, 2 slopes were established. Slope A is E2 measurements from day 22 to day 45 and slope B is E2 measurements from day 49 to day 84. The 'breakpoint' was defined as the time at which the slopes began to change. The slopes of the rise in E2 and P were calculated for each individual patient and then slope A and slope B were compared utilizing the Wilcoxon test.

**Results:** The figure to the right illustrates the E2 values of the individual patients from cycle day 22 (5 days after FET) until day 84 (12 weeks of gestation). The E2 values were approximately 200–300 pg/mL for the first 4 weeks after transfer. The 'breakpoint' was calculated as day 45 (95% CI 43.44 – 47.10). The difference in the rate of rise of the two slopes is highly significant ( $p = 0.000009$ ) with a steep rise noted beginning at day 45. The progesterone values for the entire 12 week period did not reflect a curve, but rather were linear in configuration without a rising slope.

**Conclusion:** Given that the calculated 'breakpoint' is day 45, it can be theorized that in pregnancies after FET the lutealplacental shift begins as early as 6.5 weeks gestation. This later 'breakpoint' date than what has been found in fresh transfers may reflect slower development of frozen embryos. Progesterone values were not noted to have a 'breakpoint' day, probably reflecting the supraphysiologic doses of progesterone utilized.

## P-123

**Female Age Determines the Outcome of ICSI: A Multicenter Study of 2696 Cycles.** <sup>1</sup>B. Rizk, <sup>1</sup>A. Hosain, <sup>2</sup>I. El-Danasouri, <sup>3</sup>M. Abuzeid, <sup>4</sup>G. Serour. <sup>1</sup>Dept of Ob/Gyn, University of South Alabama, Mobile, Alabama, <sup>2</sup>Dept of Gyn & Infertility, Ulm, Germany, <sup>3</sup>Hurley Medical Center, Flint, MI, <sup>4</sup>Egyptian IVF-ET Center, Cairo, Egypt.

**Objective:** To determine the impact of female age on the clinical outcome of ICSI.

**Design:** Multicenter prospective observational study.

**Materials and Methods:** All patients undergoing ICSI

treatment for male factor infertility or couples who had previous failure of fertilization in conventional IVF were enrolled. Follicle stimulating hormone and estradiol were obtained on day 2 of previous cycle. Controlled superovulation was performed in all couples using standard midluteal downregulation with GnRH agonist protocol followed by ovarian stimulation using human menopausal gonadotrophin. Ovulation was triggered by a single injection of 10,000 IU hCG when 2 follicles or more were  $\geq 18$  mm in diameter. Semen was prepared by Percoll gradient in 3 out of 4 centers and in fourth center, swim-up only was performed. Intracytoplasmic sperm injection was performed after aspiration of cytoplasm in 3 centers and without aspiration in one center (where they have previously shown no impact on the outcome of fertilization). Embryo transfer was performed with a Wallace catheter 48 hours after oocyte recovery. Luteal support was given in the form of progesterone suppositories.

**Results:** Two thousand two hundred and eighty-eight patients underwent 2,696 ICSI treatments. The mean number of oocytes per treatment cycle was 12.6. Seventy-two percent of the oocytes were at metaphase II and were injected. The damage rate of injected oocytes was 4.9%. The fertilization rate of the intact injected oocytes was 62.6% with 94.2% cleavage rate. The mean number of embryos transferred was 3.6. The sperm characteristics were compared to the fertilization, cleavage and pregnancy rate. The pregnancy rate in relation with count  $<1$ ,  $1-5$ ,  $>5$  million/ml was 37%, 32% and 43%. In patients with  $<5\%$ ,  $5-10\%$ , and  $>10\%$  motility the pregnancy rate was 34%, 48%, and 41%. In patients whose total motile sperm was  $<1$  million or  $>1$  million, the pregnancy rate was 34% and 41%, respectively. The most significant correlation was seen between the female patient's age and ICSI outcome with a clinical pregnancy rate of 38%, 35%, 33%, 23%, and 14% in the age groups 20-25, 26-30, 31-35, 36-39 and  $>40$ .

**Conclusions:** In this multicenter study, the female age was the single most important factor that correlates with the success of ICSI.

## P-124

**The Outcome of Clinical Pregnancies Following ICSI is Not Affected By Semen Quality.** <sup>1,2</sup>R. Mercan, <sup>1</sup>S. Lanzendorf, <sup>1</sup>A. Nassar, <sup>1</sup>J. Mayer, <sup>1</sup>S. J. Muasher, <sup>1</sup>S. Oehninger. <sup>1</sup>Jones Institute for Women's Health, Dept. of Ob/Gyn, Eastern Virginia Medical School, Norfolk, Virginia, <sup>2</sup>Kocaeli University, Faculty of Medicine, Dept. of Ob/Gyn, Izmit/Turkey.

**Objective:** The purpose of this study was to determine whether pregnancy outcome following ICSI is affected by the severity of sperm abnormalities. To answer this question we analyzed ICSI results in patients with severe oligoasthenoteratozoospermia (OAT) and compared them to patients who underwent ICSI for other indications and to standard IVF patients with non-male infertility.

**Design:** Retrospective study.

**Materials and Methods:** A total of 715 cycles performed during April 1994 to March 1996 were studied. Patients

were divided into three groups: Group A (n = 62) included ICSI patients with severe OAT (OAT, defined as concentration  $<20$  million/ml, motility  $<30\%$  and morphology  $<4\%$  by strict criteria); group B (n = 217) included patients who underwent ICSI with other indications (i.e. prior poor or failed fertilization with a better sperm quality); and group C (n = 436) included couples who underwent standard IVF with tubal factor infertility and normal semen parameters.

**Results:** The mean age of female patients was  $34.0 \pm 0.6$ ,  $35.1 \pm 0.2$  and  $35.3 \pm 0.2$  for groups A, B and C, respectively. The number of embryos transferred was  $4.0 \pm 0.2$ ,  $3.9 \pm 0.1$  and  $4.0 \pm 0.1$ , respectively (not significant). For group A, sperm concentration was  $5.7 \pm 0.8$  million/ml, motility was  $15.5 \pm 1.2\%$  and morphology was  $1.3 \pm 0.1\%$ ; for group B sperm concentration was  $48.2 \pm 3.7$ , motility was  $40.4 \pm 1.3\%$ , and morphology was  $4.5 \pm 0.2\%$ ; and for group C sperm concentration was  $118.0 \pm 5.9$  million/ml, motility was  $56.7 \pm 0.9\%$  and morphology was  $7.7 \pm 0.2\%$ . Fertilization, implantation, clinical pregnancy, delivery and miscarriage rates are presented in table I. The fertilization rate was significantly higher in group C  $>B >A$  ( $p < 0.001$ ). Although the miscarriage rate seemed to be higher in group A the difference was not significant ( $p = 0.2$ ).

Table I.

	Implan- tation	Fertil- ization	Clinical Pregnancy	Delivery	Mis- carriage
Group A	6%	60%	27%	18%	35%
Group B	9%	65%	29%	24%	17%
Group C	10%	87%	28%	21%	26%

**Conclusion:** Although it has been shown that, there is a higher risk of chromosomal abnormalities in patients with severe male infertility which might increase pregnancy loss, we did not observe higher miscarriage rates in patients with OAT following ICSI. Also as demonstrated in previous studies, implantation, clinical pregnancy and delivery rates in patients with severe male infertility were comparable with those patients who underwent ICSI for other indications.

## P-125

**Reduced Incidence of Allele Dropout Using SYBR Green I and PCR Identification of X and Y Amelogenin Gene in Preimplantation Genetic Diagnosis (PGD).** K. C. Drury, M. C. Liu, S. Kipersztok, R. S. Williams. Dept of OB/GYN, University of Florida College of Medicine, Gainesville, FL.

**Objective:** The objective of this study was to increase the sensitivity of single cell PCR reactions for X and Y chromosomal genes of Amelogenin as markers for sex identification in PGD.

**Design:** Single cell PCR reactions were performed on known male epidermal and fibroblast cells as well as blastomeres isolated from embryos donated to research from IVF cycles. This project was IRB approved and consents signed by all donors. Allele dropout (ADO) was deter-