

gestations. Two patients subsequently conceived an on going gestation in a frozen transfer. Enrollment continues and updated numbers will be presented.

CONCLUSIONS: These findings suggest there is no decrease in pregnancy rate from single blastocyst transfer if that embryo met specific developmental milestones on day 3. With a good quality embryo, women under 41 can expect a high chance of delivery from SET. Day 5 SET appears more effective than day 3, supporting the idea that normal development correlates with euploidy and that more evaluations make the determination easier.

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DOES QUALITY OF REMAINING EMBRYO COHORT GUIDE DECISION ABOUT EMBRYO TRANSFER NUMBER? J. D. Lamb,

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OBJECTIVE: The presence of surplus embryos for cryopreservation is a predictor of an increased implantation rate (IR). Whether this effect is related to the increased number of embryos available or to the quality of the embryos remaining is unclear. The goal of this study is to evaluate if the quality of the remaining cohort adds predictive value for IR of the embryos transferred.

DESIGN: Retrospective Cohort.

MATERIALS AND METHODS: IVF cycles from 2001–07 with a day 3 transfer and >1 embryo remaining after transfer were included (n = 1804). Embryo quality was defined by cell number and fragmentation. IR was defined by number of sacs on ultrasound per embryo transferred. Multivariate analysis was performed using a generalized linear model controlling for repeated measures and oocyte age.

RESULTS: Overall IR was 30%. The univariate analyses revealed cell number (OR 1.26, *P*0.0001, CI 0.11,0.14) and fragmentation (OR 0.82, *P*0.013, CI 0.71, 0.96) of embryos transferred were significant predictors of IR. For the remaining cohort, cell number (OR 1.11, *P*=0.001, CI 1.04, 1.18) and fragmentation (OR 0.85, *P*=0.004, CI 0.76,0.95) were also significant. The quality of embryos transferred correlated to quality of embryos remaining by fragmentation rate (*R* = 0.70) but not cell number (*R* = 0.49). The independent effect for the embryos transferred is shown (Table I). In the multivariate analysis, the quality of the remaining embryos added no additional predictive value (Table II).

TABLE 1*.

	AOR	p value	95% CI
Transfer Cohort: mean cell number	1.13	p<0.0001	1.07, 1.20
Transfer Cohort: mean fragmentation	0.82	p= 0.002	0.72, 0.93

*Adjusted for age.

TABLE 2*.

	AOR	p value	95%CI
Remaining Cohort Cell number	0.99	P= 0.81	0.92, 1.07
Remaining Cohort Mean Fragmentation	0.93	P=0.40	0.80, 1.10

*Adjusted for age, mean cell number and mean fragmentation from transferred embryos.

CONCLUSIONS: Determining the number of embryos to transfer remains a complex process. Consideration of the entire cohort has been suggested as a means to enhance predictive ability for determination of embryo transfer number. Average quality of the non-transferred embryos does not exert an independent predictive effect. Therefore, quality of the remaining embryo cohort should not guide decisions on number of embryos to transfer.

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PREGNANCY AFTER IN VITRO FERTILIZATION: DOES EMBRYO GRADE PREDICT PREGNANCY OUTCOME? C. M. Arnett,

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OBJECTIVE: To evaluate whether the grade of the embryos transferred predicts likelihood of live birth in patients who become pregnant after an in vitro fertilization (IVF) cycle.

DESIGN: Retrospective analysis.

MATERIALS AND METHODS: 482 singleton pregnancies resulted from IVF cycles from January 2005 to September 2005. Pregnancies from embryos biopsied for preimplantation genetic diagnosis (n = 17) were excluded from analysis. Patients who became pregnant following day 3 embryo transfer (ET) were divided into two groups based on the grade of the embryos transferred. The percentage of early pregnancy losses (EPL) and live births were compared for high-quality vs. poor-quality embryo transfer. Pregnancies following day 5 blastocyst transfer were analyzed separately. Pregnancy outcomes after transfer of high-quality blastocysts were compared with outcomes after transfer of poorer quality blastocysts.

RESULTS: Of 465 consecutive pregnancies analyzed, 410 (88.2%) resulted from day 3 ET and 55 (11.8%) from blastocyst transfer. In pregnancies occurring after a day 3 transfer, there was no statistically significant difference in the proportion of live births or early pregnancy losses in the two groups. However, those patients who underwent transfer of high-quality blastocysts were significantly more likely to deliver a liveborn baby and less likely to have an early pregnancy loss than those whose pregnancies resulted from poorer quality blastocysts.

TABLE. Singleton pregnancies following IVF

	Day 3 transfer		Day 5 transfer		
	High-quality ET	Poor-quality ET	High-quality ET	Poor-quality ET	
Number of patients	331	79	28	27	
Mean age	36.4 ± 4.8	37.28 ± 4.5	NS 33.6 ± 6.3	34.4 ± 5.4	NS
Mean # of embryos transferred	3.1 ± 1.2	2.92 ± 1.2	NS 2.0 ± 0.3	1.9 ± 0.7	NS
% early pregnancy loss	45.7%	48.1%	NS 28.6%	57.7%	<i>P</i> =0.031
% live birth	53.5%	50.6%	NS 71.4%	40.7%	<i>P</i> =0.022

NS: *P*>0.05.

CONCLUSIONS: The quality of blastocysts transferred is important in predicting pregnancy outcome in women with singleton gestations after IVF. Those women whose pregnancies are the result of the transfer of higher quality blastocysts are significantly more likely to deliver liveborn infants. Conversely, the quality of day 3 embryos is not a strong predictor of pregnancy outcome. Pregnancies resulting from transfer of poor-quality day 3 embryos do not have an increased risk of early pregnancy loss. Women with such pregnancies can be assured that their likelihood of delivering a liveborn baby is not diminished by the poorer quality of the embryos transferred.

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COMPARISON OF PREGNANCY AND IMPLANTATION RATES FOR TWO DIFFERENT EMBRYO TRANSFER CATHETERS.

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OBJECTIVE: The success of the IVF cycle can be affected by the choice of embryo transfer catheter. The aim of this study is to compare the pregnancy and implantation rates between the Swemed ClearVision and Wallace Soft catheters. To the best of our knowledge, these two catheters have not been compared previously.

DESIGN: Retrospective study.

MATERIALS AND METHODS: A total of 336 ICSI cycles were included in this study between January 2006 and April 2007. Selection criteria were first IVF cycle, 3 embryos transferred and ≤ 35 years of age. After controlled ovarian hyperstimulation collected oocytes and embryos were cultured in GIII series culture medium (Vitrolife, Sweden). The transfers were performed after cervix was washed with G-Rinse solution (Vitrolife, Sweden). After the outer sheath of catheter was introduced into the uterine cavity by a gynecologist, the selected embryos for transfer were loaded into the soft inner sheath of the catheter and were expelled approximately 1–2 cm from the fundus. While 114 embryo transfers were performed with Swemed

ClearVision (Swemed by Vitrolife, Sweden), Wallace Soft Catheter (Smiths, UK) was used for 222 embryo transfers. Clinical pregnancy was defined by the presence of an intrauterine gestational sac at 4 weeks after embryo transfer by using transvaginal ultrasound. Pregnancy and implantation rates were compared between groups. All results were analyzed by using the Chi-square and student t-tests and $P < 0.05$ was considered statistically significant.

RESULTS: There were no differences between patients' age (27.53 vs. 27.64), the number of collected oocytes cumulus complex (13.15 vs. 12.82), injected oocytes (10.46 vs. 10.52) and fertilized oocytes (8.01 vs. 8.13) in Swemed ClearVision and Wallace Soft Catheter groups respectively. Pregnancy and implantation rates were comparable between Swemed ClearVision and Wallace soft catheters 46.5% and 19.59% vs. 42.8% and 20.27%, respectively.

CONCLUSIONS: Choice of embryo transfer catheter plays an important role in IVF cycles. No significant difference in pregnancy and implantation rates could be found upon the comparison of the two different embryo transfer catheters. However, cost and operator preferences may affect the choosing of embryo transfer catheter.

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CESAREAN SECTION SCARS DETRIMENTALLY AFFECT EMBRYO TRANSFER. B. J. Yauger, R. J. Chason, M. D. Payson. Obstetrics and Gynecology, Walter Reed Army Medical Center, Washington, DC; Reproductive Biology and Medicine Branch, NICHD, NIH, Bethesda, MD.

OBJECTIVE: As the cesarean section rate rises above 30% of all births, the effects of such a procedure will be seen in many different aspects of women's health. The aim of this study was to determine if a prior cesarean section, and thus the presence of a cesarean section scar, had a negative impact on certain aspects of in vitro fertilization, specifically embryo transfer.

DESIGN: Retrospective case series.

MATERIALS AND METHODS: In vitro fertilization cycles that proceeded to oocyte retrieval during the period of August 2006 through March 2007 were included in the analysis. All patients who were noted to have an obvious cesarean scar on pre-IVF saline infusion sonography, at baseline ultrasound exam, or during stimulation, were analyzed. Embryo transfer procedures were performed under ultrasound guidance and with an afterload technique used. Primary outcomes analyzed included several measures of the difficulty of embryo transfer.

RESULTS: Of the fourteen patients in our cohort, 11 were found at the time of baseline ultrasound or during stimulation. The remainder were noted on pre-stimulation ultrasound, usually saline sonography. Five patients were considered to have "difficult" embryo transfers (36%) and one was noted to be "moderate". One patient required embryo cryopreservation due to inability to pass a catheter into the uterine cavity. Under ultrasound guidance, the catheter was noted to track into the cesarean section scar. Among this cohort, the pregnancy rate was 43%.

CONCLUSIONS: A prior cesarean section appears to increase the difficulty of embryo transfer in IVF. Occasionally, it may make embryo transfer impossible without corrective measures. These patients should be screened carefully prior to initiation of in vitro fertilization.

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EMBRYO QUALITY DISCREPANCY ON DAY OF TRANSFER AND SUBSEQUENT PREGNANCY SUCCESS. M. Riboldi, J. R. Alegretti, A. M. Rocha, E. Motta, P. Serafini. Huntington Reproductive Medicine, Sao Paulo, SP, Brazil.

OBJECTIVE: Determination of embryo(s) with greatest developmental potential for transference is of eminent importance, but elusive to date. Evaluation of individual embryo metabolics and secretome holds great promise; yet these assessments and their relation to embryonic features are questionable. Thus, embryo selection still relies on morphologic features mostly on day 3 post insemination. Grade I embryos (8 cells and no fragmentation on day 3) are considered top quality (TQE) and their transfer is claimed to result in higher clinical pregnancy and birth rates. However, TQE are not obtained in all cycles of IVF/ICSI and in many cycles they are transferred along with embryos of lower morphological grading. We aimed to investigate if good quality embryo implantation and clinical pregnancy can be hindered by poor quality embryos.

DESIGN: Retrospective study.

MATERIALS AND METHODS: One hundred twenty five transferences were made in patients (34 ± 1.3 years old; mean \pm SD) presented for fertility treatment by IVF/ICSI between 2003 and 2005. Transfers were classified according to proportion of TQE: A - only TQE in a maximum cohort of 3 embryos; B - 2 TQE among 3 transferred embryos; C- half of transferred embryos top quality; D- one TQE in a group of 3 embryos; E- one TQE in four transferred. Implantation rate and clinical pregnancy were recorded for each group. Implantation rates between groups were compared by ANOVA and clinical pregnancy by Chi-square analysis. Differences were considered significant at $P < 0.05$.

RESULTS: Transfers were classified as A (n = 23), B (n = 13), C (n = 27), D (n = 24) or E (n = 38). Differences in implantation rates were significant between transference classes A (IR = $30 \pm 7\%$; mean \pm SD) and E (IR = $9 \pm 3\%$), but neither of them differed from classes B (IR = $30 \pm 8\%$), C (IR = $26 \pm 6\%$), and D (IR = $25 \pm 6\%$). Overall clinical pregnancy was 44% and it was not associated to transference classes A (56%), B (61%), C (44%), D (50%), or E (26%; $P > 0.05$).

CONCLUSIONS: Increasing transfer cohort size with lower quality embryos does not appear to hinder TQE implantation or clinical pregnancy rates. However further studies addressing chances of multiple pregnancies should be performed.

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EFFECTIVENESS OF DOUBLE (CONSECUTIVE) TRANSFER IN PATIENTS WITH MULTIPLE IVF-BLASTOCYST ET FAILURES. T. Suzuki, S.-I. Izumi, G. Kika, E. Nakamura, K. Mitsuzuka, M. Mikami. Obstetrics & Gynecology, Tokai University School of Medicine, Isehara, Kanagawa, Japan.

OBJECTIVE: Several authors demonstrate that the presence of embryos in the fallopian tubes or uterine cavity can cause a functional transformation of the receptivity in the endometrium for embryos, improved the rate of implantation. It may be speculated that the cleaved embryos transferred on day 2 modulate endometrial receptivity and improve the implantation rate for blastocysts transferred on day 5. In this study we tried to examine retrospectively whether double transfer of embryos on day 2 (or 3) and on day 5 (or 6), improves IVF-ET outcomes in patients with repeated IVF-Blastocyst ET failures.

DESIGN: Retrospective study.

MATERIALS AND METHODS: The study population consisted of 19 patients having a double transfer between May 2002 and March 2006. In these patients, 14 patients had two previous failed Blastocyst (BT)-ET cycles, remaining 5 patients had three previous failed BT-ET cycles. The sequential media approach was used for the extended culture to the blastocyst stage. The embryos were initially cultured in P-1 medium or Early Cleavage Medium supplemented with 10% synthetic serum substitute. On day 3, embryos were transferred for further development into Blastocyst Medium or Multiblast Medium supplemented with 10% synthetic serum substitute (Irvine Scientific, Santa Ana, CA). The gas phase for all embryo cultured was 6% CO₂, 5% O₂ in N₂ at 37. On day 2 (or 3), one or two cleaved embryos were transferred. The remaining embryos were further cultured and one or two blastocysts transferred on day 5 (or 6).

RESULTS: The results are summarized in the Figure 1 below.

CONCLUSIONS: The double (consecutive) transfer of early embryos and blastocysts may be an effective option for patients with recurrent IVF failure.

	19 patients	mean \pm SD
Age of patient(y)	36.4 \pm 3.3	
No. of oocytes retrieved	6.3 \pm 2.6	
Fertilization rate(%)	86.7 \pm 17.0	
Blastocyst development(%)	53.4 \pm 26.1	
No. of embryos transferred		
Day 2 or 3	1.3 \pm 0.5	
Day 5 or 6	1.4 \pm 0.5	
Total	2.6 \pm 0.5	
Clinical pregnancies 7 (36.8%)		
Ongoing	4	
Single	3	
Twin	1	
Abortion	3	

Figure 1.

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