NEWLIFE FERTILITY CENTRE
Where Life Begins
www.newlifefertility.com

The Impact of eSET in Fresh and Frozen Embryo Transfer cycles on Pregnancy Outcomes.

Samuel Soliman MD FRCSC, Rania Baydoun BSc., Yuping Gao MD Ph.D, Salim Daya MD FRCSC, Bin Wang Ph.D
Newlife Fertility Center

Introduction:
Single embryo transfer was identified as the only measure to minimize multiple pregnancies following IVF. Many reports have shown that single embryo transfers often result in unacceptable lower pregnancy rate, particularly in frozen transfer cycles. Therefore, we prospectively collected data of elective single embryo transfer (eSET) and elective double embryo transfer (eDET) in fresh and frozen transfer cycles (FET).

Design: Prospective cohort study
Setting: Private fertility center

Material and methods:
In 2009, all IVF patients of ages ≤37 years old were routinely offered eDET. In 2010, in an effort to reduce mutiple pregnancies, patients less than 37 year old that had a least one AA grade Blastocyst and at least a second blastocyst for freezing were offered eSET. Stimulation protocols followed the long or short protocols based on the clinician's decision. Retrievals were conducted 36 hours after HCG injection. Recovered eggs were fertilized with ICSI or insemination depending on the parameters of sperm analysis. The embryos were cultured with sequential media or single step media in 5% O_2, 6% CO_2 at 37^{o}C. Good quality blastocysts were selected for intrauterine transfer under ultrasound guidance. The remaining blastocysts were frozen. The outcomes of the embryo transfer were compared between eSET and eDET in both fresh and frozen cycles.
The percentage data were examined by X^2 analysis. P value <0.05 is considered statistically significant.
Results:

The comparison of pregnancy outcomes of day 5 embryo eSET vs. day 5 embryo eDET

Groups	Cycle types	Ages	Patients with ET n	HCG positive n (%)	Ongoing Pregnancy n (%)	# multiple pregnancies n (%)
eSET	**Fresh ET**	≤30	32	18(56%)	14(44%)	**0**
		31-35	45	31(69%)	28(62%)	**0**
		36 -37	18	11(61%)	6(33%)	**0**
		Sub total	**95**	**60(63%)**	**48(51%)**	0
	FET	≤30	62	41(66%)	30(48%)	**0**
		31-35	35	23(66%)	19(54%)	**0**
		36 -37	13	6(46%)	4(31%)	**0**
		Sub total	**110**	**70(64%)**	**53(48%)**	0
		Total	**205**	**130(63%)* P=0.0052**	**101(49%)* P=0.0001**	0
eDET	**Fresh ET**	30 ≤	70	56(82%)	49(70%)	**26(53%)**
		31-35	102	71(69%)	55(54%)	**24(44%)**

		36 -37	36	28(78%)	23(64%)	**10(44%)**
		Sub total	**208**	**155(75%)**	**127(61%)**	60(47%)
	FET	30 ≤	55	45(82%)	36(65%)	**16(47%)**
		31-35	119	94(79%)	70(59%)	**28(40%)**
		36 -37	40	29(73%)	24(60%)	**8(33%)**
		Sub total	**214**	**168(79%)**	**130(61%)**	52(40%)
		Total	422	323(77%)* P=0.0052	257(61%)* P=0.0001	112 (44%)

A significant drop of pregnancy rate in eSET group comparing to eDET is observed (49% vs. 61%, P=0.0001). However, no significant difference is seen when you compare frozen and fresh transfers in eSET and eDET groups. eDET groups showed high multiple pregnancy rate (44%) compared with eSET that resulted in no multiple pregnancies.

Conclusions:

eSET in good prognosis patients less than 37 results in a significant drop in pregnancy compared to eDET. This should be disclosed to patients and balanced by the elimination of multiple pregnancy risks. A successful embryo-freezing program is crucial to maintain acceptable pregnancy rates when patients choose eSET for both fresh and frozen embryo transfer.