

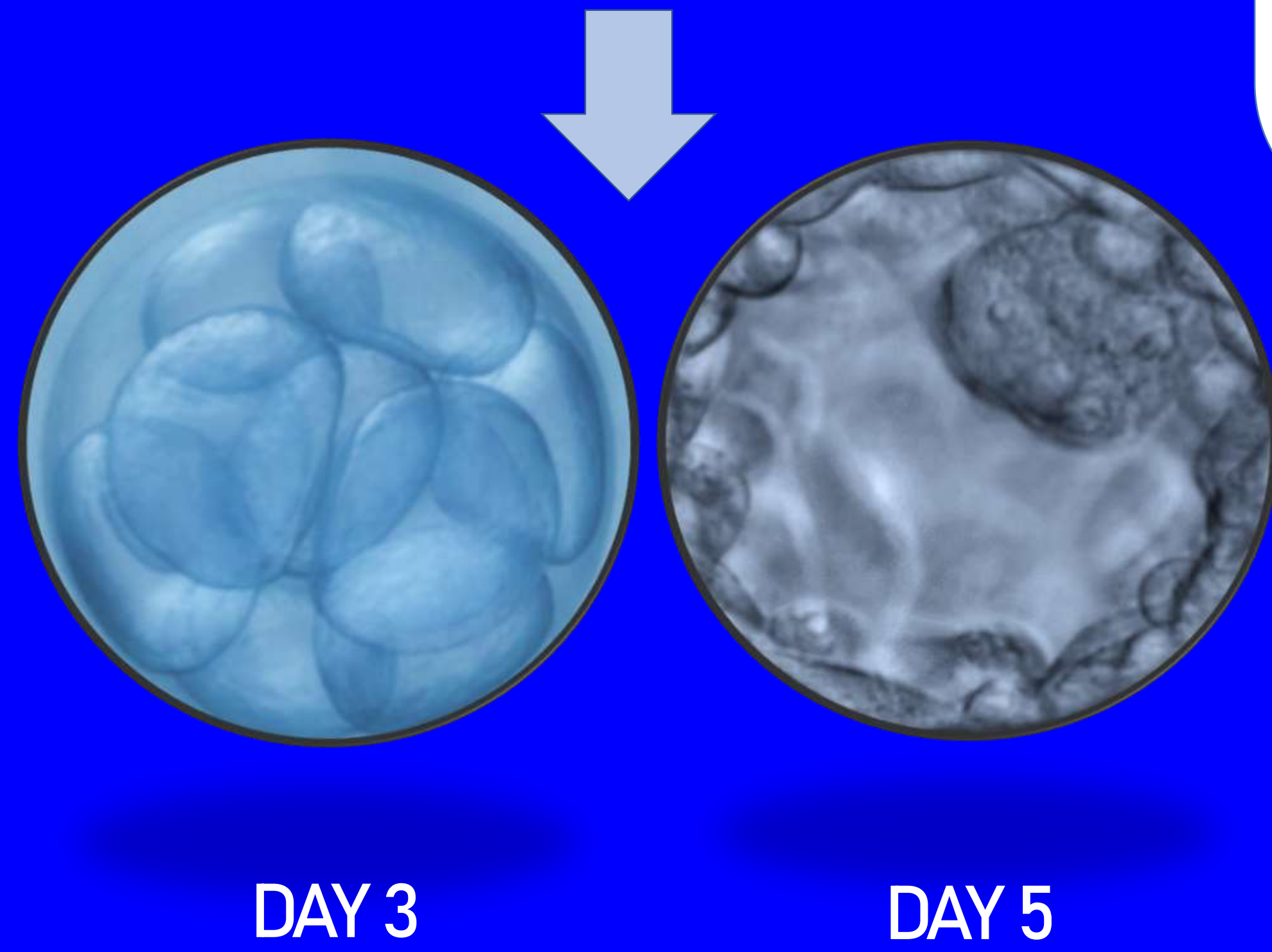
EMBRYO TRANSFER – CLEAVAGE STAGE VS BLASTOCYST STAGE – A COMPARATIVE STUDY

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INTRODUCTION: In vitro fertilization (IVF) is a complicated procedure, whose success depends on several factors. Besides the status of the embryo and endometrium, embryo transfer (ET) plays a key role. However, there are few prospective randomized studies in India, comparing day 3 versus day 5 embryo transfer.

AIMS: To compare implantation and pregnancy potential of day 3 versus day 5 embryo transfer in women undergoing an in-vitro fertilization or Intracytoplasmic sperm injection (ICSI).



MATERIAL AND METHODS: Study included 270 women from January 2014 to December 2016. After retrieval of oocytes and their fertilization, patients were randomly assigned to undergo embryo transfer either on day 3(Group A) or day 5(Group B). Demographic data, clinical profile, implantation and pregnancy rates were compared between the two groups.

Statistical Analysis: Comparisons between groups were made by using Fisher's exact test or chi-square analysis. $P \leq 0.05$ was considered as significant.

RESULTS: The distribution of patients were similar between the two groups (n=135 and 135 respectively) and there was no statistically significant difference in terms of duration of infertility ($p=0.208$), number of oocytes retrieved ($p=0.136$), number of oocytes fertilized ($p=0.619$), and number of embryos transferred ($p=1$). Both the groups had statistically similar implantation rates, clinical pregnancy rates, live birth and perinatal death rates ($p=0.33$, $p=0.272$, $p=0.532$, and $p=0.701$, respectively).

Table 1 : Clinical characteristics of the embryo transfer

	Overall (n=270)	Group A (Day 3) (n=135)	Group B (Day 5) (n=135)	P value
Collected oocytes per cycle	9.4 ±3.3 (3-14)	9.1 ± 3.4	9.7 ± 3.2	0.136
Fertilized oocytes per cycle	6.6±3.3 (2-8)	6.7 ± 3.2	6.9 ± 3.4	0.619
Transferred embryos per cycle	1.4 ± 0.5 (1-2)	1.4 ± 0.6	1.4 ± 0.4	1.0
Embryo grade				
Grade 1	36 (13.3%)	7 (5.2%)	29 (21.5%)	<0.001
Grade 2	160 (59.3%)	74 (54.8%)	86 (63.7%)	0.137
Grade 3	74 (27.4%)	54 (40%)	20 (14.8%)	<0.001
Transferred embryos				
2-cell	14 (5.2%)	14 (10.3%)	0 (0.0%)	-
3-cell embryos	18 (6.7%)	18 (13.3%)	0 (0.0%)	-
4-cell embryos	87 (32.2%)	87 (64.4%)	0 (0.0%)	-
>4-cell embryos	151 (56%)	16 (11.8%)	135 (100.0%)	-
Blastocyst grade				
Early	-	-	66 (48.9%)	-
Full	-	-	29 (21.5%)	-
Expanded	-	-	40 (29.6%)	-

Table 2 : Pregnancy outcomes of the embryo transfers

	Overall (n=270)	Group A (Day 3) (n=135)	Group B (Day 5) (n=135)	P value
Implantation rate	138 (51.1%)	65 (48.1%)	73 (54%)	0.33
Clinical pregnancies	127 (47%)	59 (43.7%)	68 (50.4%)	0.272
Singleton	112 (41.5%)	53 (39.2%)	59 (43.8%)	0.593
Twins	15 (5.6%)	6 (4.4%)	9 (6.6%)	
Miscarriages	11 (4.1%)	6 (4.4%)	5 (3.7%)	0.758
Singleton	7 (2.6%)	4 (2.9%)	3 (2.2%)	0.819
Twins	4 (1.5%)	2 (1.5%)	2 (1.5%)	
Perinatal deaths	7 (3.2%)	3 (2.2%)	4 (2.9%)	0.701
Singleton	4 (1.5%)	2 (1.5%)	2 (1.5%)	0.659
Twins	3 (1.1%)	1 (0.7%)	2 (1.5%)	
Live births	105 (38.9%)	50 (37%)	55 (40.7%)	0.532
Singleton	98 (36.3%)	48 (35.6%)	50 (37%)	0.296
Twins	7 (2.6%)	2 (1.5%)	5 (3.7%)	

CONCLUSION:

Present study demonstrates that blastocyst stage transfers have no advantages over cleavage stage transfers. Both had similar implantation rates, pregnancy rates, live births and perinatal death rates. In conclusion, the efficacy of blastocyst stage ET is similar to cleavage stage ET. Although due to small sample size, the power of the present study is limited.