Wednesday, October 15, 2003
4:15 P.M.

O-267

Early cleavage assessment in embryos from Intracytoplasmic Sperm Injection (ICSI) cycles. Patrícia Guilherme, Lia M. Rossi, Assumpto Iaconelli Jr, Claudia C. Rocha, Christiany V. Locambo, Edson Borges Jr. Fertility - Ctr de Fertilizaçao Assistida, Sao Paulo, Brazil.

Objective: More recently, assessment of the time of cleavage to the 2-cell stage has proven to be a reliable parameter for the selection of embryos with the highest capability of implantation and successful pregnancy after transfer. The purpose of this work was to compare the relevance of early cleavage (EC) under embryo development and pregnancy occurrence.

Design: Propsective in vitro study.

Materials and Methods: This prospective study included 147 ICSI cycles (122 patients). Several classifications were done in the same embryos since fertilization diagnosis until time to transfer. All zygotes that were normally fertilized (two pronuclei) were included. Seventeen hours after ICSI, the pronuclear (PN) and nucleolar precursor body (NPB) arrangement were evaluated. Normal embryos (S0) showed aligned or aligning PN, with no discrepant number of NPB compared between male and female PN. Embryos with different conditions were classified as abnormal (S1). Early cleavage assessment was done, as a rule, 26 hours after ICSI. Three groups were formed: (A) embryos with visible PN; (B) embryos non-cleaved without visible PN and (C) EC-embryos. Embryo selection was performed on day 3 according to number, size, shape of cells and fragmentation. "Good quality embryos" was classified when had regular blastomeres, with at least 6 cells and without fragmentation on day 3. "Top quality embryos" were named when good quality embryos showed also S0 classification. It should be noted that embryos were not selected for transfer on the basis of early cleavage occurrence. Statistical significance was determined using Student's t test, chi-square and Fisher's exact tests as appropriate with statistically significant differences considered at $p < 0.05$.

Results: The mean maternal age (SD) was 36.4 (5.5) and did not differ among three groups (34.5 ± 4.6; 34.1 ± 5; 34.2 ± 4.2; groups A, B and C; respectively; $p > .05$). A total, 1203 viable oocytes were obtained after ICSI and of these, 74.3% had shown normal fertilization ($n = 894$) and were analyzed. The presence of EC embryos in ICSI cycles seemed to predict the occurrence of pregnancy in cycles that provided 1 or 2 EC embryos (40%) and more than 3 EC embryos (56.1%). Irrespective of other classifications (PN or day 3 morphology), when at least one EC embryo was transferred, pregnancy occurred in 60% of patients, two times higher than that obtained without the transfer of these kind of embryos (33%; $p = 0.025$). Complementary results are shown in the table.

Complementary results			
	Group A	Group B	Group C
Ranked embryos (%)	379 (42.4)	269 (30.1)	246 (27.5)
S0 embryos (%)	190 (50.1)	145 (53.9)	144 (58.5)
Good quality embryos (%)	8.4 [a]	12.4 [b]	22.2 [c]
Top quality embryos	4.2 [a]	6.7 [b]	13.1 [c]

(a - b; b - c: $p < 0.05$; a - c: $p < 0.001$).

Conclusion: Our data suggest that early cleavage parameter is a powerful indicator of embryo potential, working as a reliable prognostic tool for patients undergoing to ICSI technique. It should be incorporated in embryo classification grading, resulting in overall significantly improved embryo selection.

Wednesday, October 15, 2003
4:30 P.M.

O-268

Sub-optimal fertilization: A new parameter to predict successful outcomes in assisted reproduction. Assumpto Iaconelli Jr, Lia M. Rossi, Patrícia Guilherme, Claudia C. Rocha, Christiany Locambo, Edson Borges Jr. Fertility—Ctr de Fertilizaçao Assistida, Sao Paulo, Brazil.

Objective: Intracytoplasmic sperm injection (ICSI) has become the premier treatment modality for severe male factor infertility. This technique yields good pregnancy and implantation rates using both ejaculated or surgically retrieved spermatozoa. The aim of this study was to analyze the effect of sub-optimal normal fertilization in ICSI outcomes, according to the source of sperm.

Design: Retrospective in vitro study.

Materials and Methods: This work included 918 patients with classical indications for ICSI performing 1061 cycles. In 737 couples ICSI was done with ejaculated spermatozoa and in 181 patients the spermatozoa were obtained by aspiration technique. The criterion to exclude female factor was maternal age ≤ 35 years and more than 4 oocytes retrieved. Patients were ranked based on the fertilization rate namely: group A (normal fertilization rate equal or less than 50%) and group B (normal fertilization rate more than 50%). Statistical significance was determined using Student's t test, chi-square and Fisher's exact tests as appropriate with statistically significant differences considered at $p < 0.05$.

Results: The mean age (SD) of female patients was 30.1 (3.7) with no statistical difference among the groups. The incidence of sub-optimal fertilization was 11.8% (126 of 1061 ICSI cycles). Complementary results are shown in table.

Variables	Non-ejaculated spermatozoon *Group A*	non-ejaculated spermatozoon *Group B*	Ejaculated spermatozoon *Group A*	Ejaculated spermatozoon *Group B*
Cycles / patients	27 / 24	181 / 157	99 / 82	754 / 655
Mean maternal age (SD)	29.6 (4.1)	29.6 (3.9)	30.1 (3.9)	30.9 (3.2)
Mean oocyte number per patient	18.9	19.0	17.9	17.6
Fertilization rate (%)	36.1	82.0 [a]	35.8	88.8 [b]
Pregnancy / patient (%)	16.7	43.3 [a]	12.2	35.1 [b]
Miscarriage rate (%)	66.7	22.0 [a]	60.0	27.3 [b]
Implantation rate (%)	7.5	22.3 [a]	6.3	21.2 [b]

([a] and [b] : $p < 0.05$; [a] group A compared with group B in non-ejaculated sperm group; [b] group A compared with group B in ejaculated sperm group).

Conclusion: Irrespective of source of sperm, cycles that exhibit sub-optimal fertilization rates are likely to provide embryos with implantation potential three times lower. Our data suggest that the fertilization rate may be considered a new, additional and valuable parameter to predict successful ICSI outcomes.

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4:45 P.M.

O-269

High endometrial aromatase P450 messenger RNA expression is associated with poor IVF outcome. Jan J. Brosens, European Fertility Association (EFA). Imperial Coll London, London, United Kingdom.

Objective: The success of IVF treatment is thought to be dependent upon embryo quality and endometrial receptivity. Previous reports indicated that expression of aromatase P450 in the endometrium is restricted to women with proliferative reproductive tract disorders such as endometriosis, leiomyomas, and adenomyosis. The aim of this study was to determine if the level of endometrial aromatase P450 mRNA expression is a determinant of IVF outcome in infertile women.

Design: A prospective multicenter case-control study.

Setting: Eight European IVF units and a university center for reproductive research.

Patients: A hundred twenty patients awaiting IVF treatment.

Intervention(s): Endometrial biopsy prior to starting IVF treatment.

Main Outcome Measures: Endometrial aromatase P450 and GAPDH transcripts were quantified by real-time RT-PCR using an ABI PRISM 7700 Sequence Detection System.

Results: Aromatase P450 transcripts were detected in all endometria examined, although the levels varied considerably between samples ranging