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A Randomized Prospective Comparison of a Sequential Versus Single

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OBJECTIVE: To compare embryo development and pregnancy rates from embryos cultured in a single culture media system (Life GLOBAL) with a sequential media system (COOK Sydney IVF).

DESIGN: A prospective, randomized clinician-blinded trial.

MATERIALS AND METHODS: Over a 3 month period, 108 consecutive patients were alternately assigned to have their embryos cultured in either COOK or GLOBAL media. The embryos were cultured in Nunc 4-well plates containing 0.8mL of culture medium. Embryos of similar cell stage and quality were sorted and grouped together on day 2. Excess embryos which remained in culture beyond day 3 were placed in 50uL drops of COOK blastocyst medium, or fresh GLOBAL medium under oil, in 30mm Falcon dishes. A maximum of 5 embryos were placed in each drop. All embryos were cultured in COOK MINC incubators, using a 6%CO₂/5%O₂ gas mix, balanced with nitrogen. All observations were made in a humidified IVF chamber with 6% CO₂ at 37°C. Fertilization, embryo development and pregnancy results were compared for the 2 groups.

RESULTS: There was no significant difference in fertilization rates for the COOK(77%) and GLOBAL (78%) groups. The percentage of embryos reaching the 6- to 8-cell stage by the morning of day 3 and the percentage of patients who had embryos frozen are shown in Table I.

More zygotes cultured in Global media developed to the 6- to 8-cell stage by the morning of day 3 for all age groups. The percentage of patients who had embryos frozen was significantly greater for the Global group (p<0.001 for each age group). The clinical pregnancy rates are shown in Table II. The clinical pregnancy rate was significantly higher for the GLOBAL group, despite the transfer of similar numbers of embryos in each group.

CONCLUSION: Embryo culture in GLOBAL media yielded a higher percentage of 6- to 8-cell embryos on day 3 of culture compared with the COOK media series. Regardless of patient age, patients who had embryos cultured in GLOBAL media were more likely to have embryos cryopreserved and had significantly higher pregnancy rates compared with the COOK media group. These results underscore the importance of systematically evaluating different culture systems in individual laboratories. ge, embryos cultured in GLOBAL media yielded a ght.

Supported by: None

Table I. Embryo Development

Patient Age	% ZPN's becoming 6-8 cells on day 3		% of patients with embryos frozen	
	Cook	Global	Cook	Global
<37 yrs	88	78	64	74
≥37 yrs	82	74	13	24
All ages	88	77	43	58

Table II. Clinical Pregnancy Rates

Patient Age	Cook	Global	P value
<37 yrs	45% (15/33)	60% (21/35)	<0.01
≥37 yrs	17% (4/23)	41% (7/17)	<0.01
All ages	34% (19/56)	56% (28/50)	<0.01