Title: INTRODUCTION OF A SINGLE STEP MEDIUM FROM FERTILIZATION THROUGH BLASTOCYST STAGE BY SUPPLEMENTATION OF THE CULTURE MEDIA WITH L -CARNITINE
**Objective:** Use of single step medium from fertilization to blastocyst has been recently introduced. We have previously shown that LC supplementation to the culture media enhances both the embryogenesis and blastocyst development rate (%BDR). The aim of this study was to compare %BDR in a single step medium supplemented with LC versus the %BDR in extended sequential culture media in ICSI patients.

**Design:** Prospective clinical study.

**Materials and Methods:** We included patients who had >15 fertilized oocytes and who were not interested in embryo cryopreservation at day 3. 22 infertile couples (male factor infertility: n = 4; female factor infertility: n = 6; combined male and female factor infertility: n = 12) underwent ICSI. A total of 173 embryos (2PN) were randomized into two groups: Group A = n = 80 were incubated in ISM1 culture media (cleavage media, Medicult, Denmark) supplemented with 0.3mg/mL LC through the blastocyst stage formation, and Group B: n = 93 incubated in ISM1 culture media without LC. On day 3 the embryos in group B were transferred to ISM2 extended culture media without LC. Only Grade A embryos were examined for %BDR at day 5.

**Results:** Comparison of percentage of Grade A embryos at day 3 and %BDR at day five for the 2 groups is shown in

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade A embryos (day 3)</td>
<td>100.0 (100.0, 100.0)</td>
<td>70.0 (60.0, 75.0)</td>
<td>30.0 (25.0, 40.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% BDR (day 5)</td>
<td>50.0 (50.0, 60.0)</td>
<td>42.9 (33.3, 50.0)</td>
<td>16.7 (0.0, 25.0)</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Values are median (25th and 75th percentile); P value <0.05 was considered significant by Wilcoxon signed-rank test.

**Conclusions:** LC provides a single step media with %BDR comparable with extended sequential culture media. Supplementing LC to the 2PN embryos significantly improves the embryo quality at day 3 and the number of embryos reaching the blastocyst stage.

**Support:** None.

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