Relevance of Assisted Hatching with Blastocyst Stage Transfer

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When a blastocyst expands with the growth of the blastocoel, it stretches and thins the zona pellucida (ZP), ultimately rupturing the ZP allowing the embryo to hatch free ready for implantation.

Introduction
Extended culture of human embryos to the blastocyst stage enables increased selection potential of embryos for transfer. ... blastocyst stage itself can act as a diagnostic tool, and as a potential passive screen for certain aneuploidies (Jones & Trounson, 1999). In vitro culture may continue for 5 or 6 days depending on the rate of development of the embryos to the ... release of the embryo from its ZP. Hence, delayed development of day-6 blastocysts might be compensated for by use of AH.

Materials and Methods
All normal zygotes were maintained individually in micro-droplets of stage-appropriate culture medium until day-6 of development. ... AH prior to transfer. In this Test Group all blastocysts were exposed to 0.1M sucrose in modified HTF for 1 minute to shrink the embryo, and a hole (35 to 40µm) was drilled with acidic Tyrode’s medium in the ZP away from the shrunken embryo. In the Control Group all blastocysts were transferred with intact ZP.

Results
Table 1 shows the outcomes relative to each study group:- following ET of an average of 2.6 blastocysts in the Control Group, the following were recorded:- CPR, OPR and IR for the AH Test and the Control Groups were as follows:-

<table>
<thead>
<tr>
<th>Group</th>
<th>CPR</th>
<th>OPR</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>29%</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>Assisted Hatching</td>
<td>46%</td>
<td>38.5%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

Conclusions
Simplistically speaking, the fact that day-5 embryos seem consistently to outperform the day-6 embryos prior to the use of AH ... implantation. With AH on day-6 as a tool to enhance the hatching process, the hatching rate is increased and it is possible that the implantation rates may be further improved.

References:

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