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Title

IMPLANTATION RATES ARE NOT AFFECTED BY THE TRANSFER OF COMPLETELY HATCHED (GARDNER EXPANSION 6) EMBRYO AFTER TROPHECTODERM BIOPSY

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Objective:

With quantitative real-time polymerase chain reaction (qPCR)-based comprehensive chromosome screening (CCS), it's possible to biopsy blastocyst stage embryos, receive a genetic interpretation overnight and transfer within a 12-hour period. Although CCS gives insight into the genetic composition of an embryo, laser hatching, embryo biopsy, and extend culture can result in an embryo that is fully hatched and potentially fragile, particularly at the time of transfer. We sought to investigate if the replacement of a euploid fully hatched affects implantation rates compared to less expanded matched controls.

Design:

Retrospective cohort analysis

Materials and Methods:

Patients undergoing a fresh IVF cycle with qPCR-based CCS who had a fresh euploid ET on day 6 from September 2013 to January 2015 were included. Trophectoderm biopsies were performed on Day 5, contingent upon expansion eligibility criteria (embryos $\geq 3BB$). Embryos were graded before ET according to the Gardner scale. Embryos were classified by either partially expanded (expansion grade 4 and 5) or fully hatched (expansion grade 6) at ET. Embryos with expansion 3 or less were excluded. Biochemical and clinical pregnancies were analyzed. Fisher exact test on contingency tables was computed on frequencies with significance at $p < 0.05$.



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Results:

A total of 234 patients were included in the study, (Gardner 4-5: n=112; Gardner 6: n=122). Patient's demographics were similar between groups (Table 1). There was no significant difference in biochemical (65.2% vs. 64.8%) or clinical (54.5% vs. 53.3%) PRs from single euploid ETs whether or not the embryo was fully hatched prior to ET ($p>0.05$) (1.02 OR [0.58-1.82 95% CI]).

Conclusions:

This study corroborates former reports that the transfer of a single euploid blastocyst results in high implantation rates. Additionally, it demonstrates that a fully hatched embryo is neither more friable nor less likely to implant after an embryo transfer. In our study, implantation, clinical pregnancy, and miscarriage rates were similar when blastocysts were transferred fully hatched as compared to non-fully hatched embryos.

Support:

None.

Table:

	Gardner 4-5 (n=112)	Gardner 6 (n=122)	Chi Square
Oocyte Age	36.6±4.2	35.9±5.0	NS
Day 3 FSH	5.7±2.9	6.1±3.2	NS
AMH	3.1±3.0	3.4±2.9	NS
End. thickness (mm) at surge	9.7±1.9	9.9±1.9	NS
Peak estradiol	2292.7±1072.2	2453.9±1243.3	NS
Oocytes retrieved	17.2±9.0	17.8±9.6	NS
MII	13.1±8.0	13.9±7.8	NS
Number of 2PN	10.6±6.8	11.9±7.7	NS
Implantation rate	56.3% (63/112)	51.2% (66/129)	NS
Biochemical PR	65.2% (73/112)	64.8% (79/122)	NS
Clinical PR	54.5% (61/112)	53.3% (65/122)	NS
Miscarriage rate	30.1% (22/73)	27.8% (22/79)	NS