LIVE BIRTH AND CYCLE OUTCOMES FROM ULTRAFAST WARMING AND STANDARD WARMING PROTOCOLS AND A COMPARISON OF SIBLING EMBRYO TRANSFER OUTCOMES

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Background: With the ever-increasing complexity of laboratory work, ultrafast warming has a number of potential benefits including decreased processing time and the return of the embryo to the physiologic state sooner than conventional methods.

Objective: The aims of this study were to evaluate the euploid single embryo transfer (eSet) live birth outcomes from an ongoing prospective comparison between ultrafast warming (UFW) and standard warming (SW) protocols and to compare the outcome and live birth rates between UFW and SW with sibling embryos.

Materials and Methods: 199 patients underwent euploid eSet and were randomized in to either the UFW group (FujiFilm warming media at 37C, 1 minute in TS, wash in 4 drops of culture media and transfer to culture drop) or the SW group (FujiFilm warming media at 37C, 1 minute in TS, 4 minutes in DS, 4 minutes in WS, 4 minutes in WS, transfer to culture media). All blastocysts were transferred utilizing standard transfer protocols. Maternal age, embryo survival, pregnancy (positive hCG), ongoing pregnancy (fetal cardiac activity), miscarriage (loss post cardiac activity), live birth, gestational age, and birth weight were compared between the groups.
Of the 199 patients, 24 had a second embryo warming cycle utilizing the opposite warming protocol (first warming as UFW and second as SW or first warming as SW and second as UFW) that occurred within +/- 12 months. Pregnancy, ongoing pregnancy, miscarriage, and live birth outcomes were compared between these sibling embryo transfer cycles.

Results: A total of 199 patients were randomized in to two groups with 99 in UFW and 90 in SW, each undergoing a single euploid frozen embryo transfer. The average maternal age (36+-3.7 UFW and 36+- 3.4 SW) and embryo survival (99% UFW and 100% SW) between the groups was not significantly different. No significant difference was seen between UFW and SW groups respective to pregnancy rate (78%, 72%), ongoing pregnancy rate (59%, 52%), miscarriage rate (12.1%, 11.3%), live birth rate (51%, 48%), average gestational age (39 weeks, 38 weeks), or average birth weight (3212g, 3477g).
Of the 24 sibling embryo warming and transfer cycles, the pregnancy rates were not significantly different between the UFW and the SW protocols (79%, 58%). The ongoing pregnancy (58%, 29%), miscarriage (4%, 29%), and live birth (54%, 17%) rates were however all found to be significantly higher in the UFW group.

Conclusion: With no significant difference seen in miscarriage rates, live birth rates, gestational age at delivery, or birth weight between the UFW protocol compared to the SW protocol, our study demonstrates the efficacy of the UFW as a standard laboratory warming procedure. In consecutive sibling embryo transfer cycles, lower ongoing pregnancy and live birth rates as well as higher miscarriage rates were found in the SW group compared to the UFW group. A larger comparison of sibling embryo warming cycles is required to confirm this finding and reduce any confounding variable effects.

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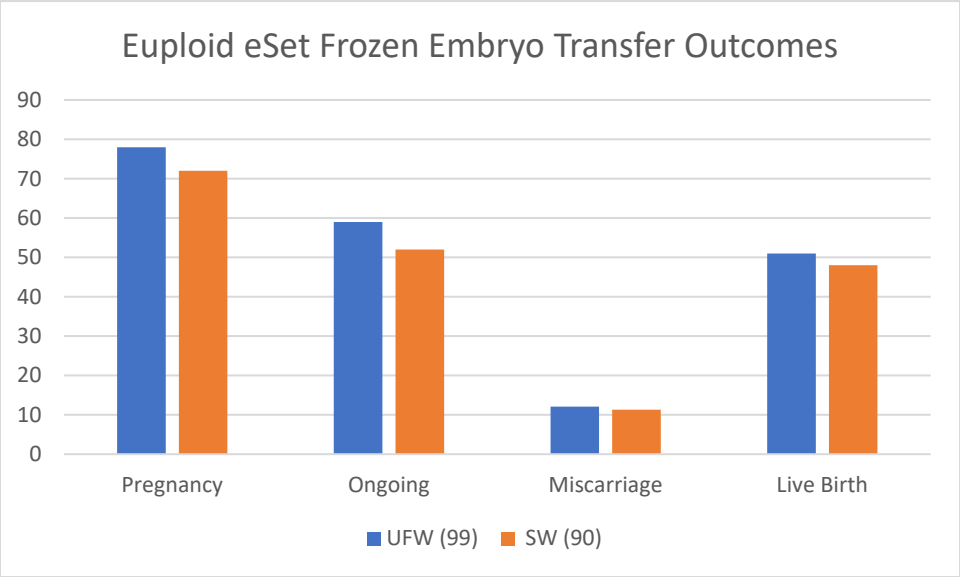
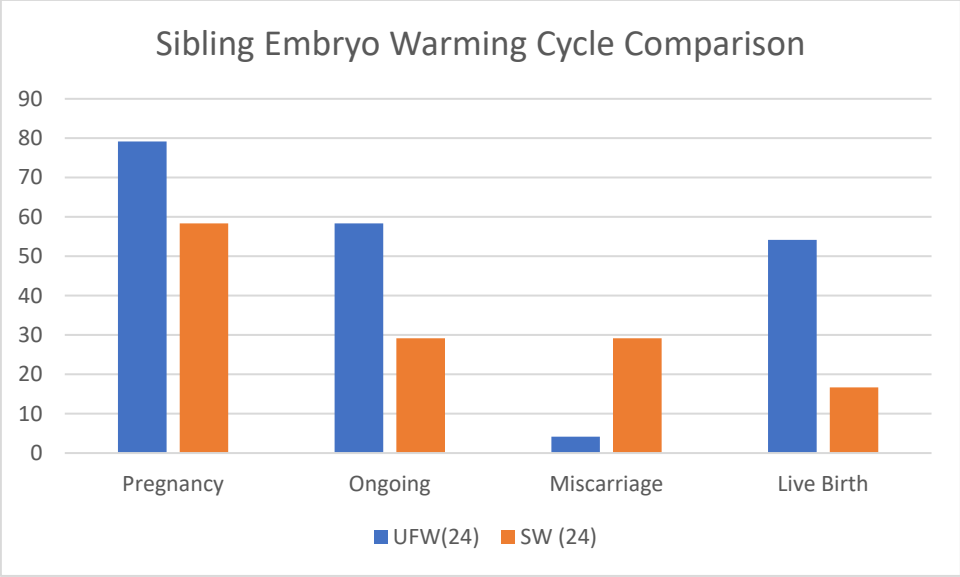
References: Clinical Validation of a New Ultrafast Warming Protocol, Resulting in Equivalent Implantation Rates and Significant Time Savings Versus Routine Warming Protocol, A Prospective Randomized Control. Tyl, H. Taylor, PhD, HCLD


Euploid eSet Frozen Embryo Transfer Outcomes
90
80
70
60
50
40
30
20
10
0
Pregnancy
Ongoing
Miscarriage
Live Birth
UFW (99)
SW (90)


Sibling Embryo Warming Cycle Comparison
90
80
70
60
50
40
30
20
10
0
Pregnancy
Ongoing
Miscarriage
Live Birth
UFW(24)
SW (24)