CULTURING EMBRYOS TO DAY 7. A VIABLE OPTION FOR IVF PATIENTS?

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**Background**

Most IVF programs in-vitro culture embryos until Day 6 post fertilization. However, if embryo culture is extended an additional day, (i.e. Day 7) does this provide patients the opportunity to obtain a euploid embryo particularly if additional time is needed for a slow developing blastocyst to reach a suitable stage for embryo biopsy.

**Objectives**

In this study we wanted to determine if extending the culture time to Day 7 would be beneficial to patients and provide them with a better opportunity to achieve a viable pregnancy.

**Study Design**

A retrospective analysis of 698 FET cycles was performed to evaluate the value of culturing embryos to Day 7

**Methods**

Embryos were cultured in continuous culture medium (Irvine Scientific) from fertilization check through Day 7 without media renewal. All freeze quality blastocysts on Day 5, 6, or 7 based on morphological parameters were either vitrified (freeze all cycles) or biopsied and vitrified for PGT. All embryos were collapsed by laser prior to using the Irvine Scientific vitrification kit. All embryos were warmed 2-4 hours prior to the frozen embryo transfer.

**Results & Discussion**

Of 698 FET’s, 426 involved exclusively Day 5 embryos, 249 Day 6 and 23 Day 7. The average number of embryos transferred in each group were Day 5: 1.1; Day 6: 1.06; Day 7: 1.04 (p=NS) Implantation rates were 49%, 51%, and 17%, respectively. D5 vs. D6 (NS) D5 vs. D7 p < 0.05; D6 vs. D7 p <0.05.

**Conclusions**

Culturing embryos to Day 7 does result in more viable pregnancies1,2. Although vitrified Day 7 embryos are usually the last selected for FET, some patients may only have Day 7 euploid embryos to transfer or slower developing embryos which only reach freeze-quality on Day 7. Although data is limited, culturing embryos to Day 7 appears to be beneficial, as this increases the total number of pregnancies achieved without significantly increasing the laboratory workload. Further investigation of ploidy status from Day 7 embryos may explain the lower implantation rate.

**References**

Li, M., et al. Day 7 blastocysts, should they be discarded or cryopreserved?. Fertility and Sterility 90 (2008): S427