

O-199 Proof of concept: implantation window must be wider than proposed. Report of seven twins after asynchronous double embryo transfer

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Study question: Can simultaneous transfer of two embryos that were cryopreserved at different stages (D3 and Blastocyst) be appropriate to enhance success in women with more than three failed embryo transfers?

Summary answer: Double asynchronous embryo transfer offered excellent results in RIF. Unexpectedly high twin rate suggests that embryo-endometrium synchrony is overemphasized. Implantation window must be wider.

What is known already: Transcriptomic signature of the endometrium has been investigated in the last few years trying to understand the best moment for embryo implantation. Nevertheless, the optimal period has not been well established yet in humans. Simultaneous transfer of two human embryos at different developmental stages (D3 and Blastocyst) on Day 4 was proposed to help couples who have had RIF.

Study design, size, duration: Observational case-control study. From April 2016 to January 2021, we offered double asynchronous embryo transfer only after Recurrent Implantation Failure (RIF). Two requirements were necessary: 1) Double embryo transfer was acceptable by the couple due to poor reproductive outcome. 2) Availability of two embryos cryopreserved at different stage (D3 and Blastocyst). Results were compared with good prognosis patients (all patients under 35 years in that period who had elected to transfer two day 3 cryopreserved embryos).

Participants/materials, setting, methods: Forty-five patients accepted to participate in the study. Results were compared with all patients (237) under 35 years where two D3 thawed embryos were transferred. All cases received same protocol (oral estradiol 6mg/d or vaginal estradiol 4mg/d until ultrasound showed endometrial growth) LH, P4 and E2 were monitored in all patients to detect spontaneous LH surge. All cases received transvaginal micronized progesterone 800 mg/d. Embryo transfers were ultrasound guided and Wallace Embryosure catheter was employed.

Limitations, reasons for caution: Multiple pregnancy rate was unacceptably high. Therefore, it should not be suggested for good prognosis couples where single embryo transfer is clearly advised. Our main limitation was the combination of D3 embryos with blastocysts. The retrospective design make the results to be considered as a proof of concept.

Wider implications of the findings: Double asynchronous embryo transfer can offer new insights in the understanding of human implantation. The concept of implantation window is clearly challenged. Aiming to the center of the window is fine, but we still don't know how wide is that center.

Trial registration number: not applicable