PROGESTERONE-PRIMED CYCLES RESULT IN SLOWER EMBRYOS WITHOUT COMPROMISING THE IMPLANTATION POTENTIAL, WITH THE ADVANTAGE OF ORAL ADMINISTRATION AND POTENTIAL COST REDUCTION: A TIME-LAPSE IMAGING STUDY

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INTRODUCTION

Improvements in cryopreservation techniques associated with the expansion of elective-single embryo transfer have steadily increased the use of deferred embryo transfers. This gives the opportunity to break away from the standard sequence of stimulation–retrieval–transfer, and to consider new strategies for pharmacological control of follicle growth. Usual ovarian stimulation regimens use an analog of the GnRH to prevent the LH surge and premature ovulation. Since progesterone can block the LH surge question remains on whether exogenous progesterone may replace the use of an GnRH analogue without compromising embryo development, in cycles followed by embryo cryopreservation. The objective of this study was to investigate whether exogenous progestin could replace the use of a GnRH antagonist without any effects on embryo morphokinetics and implantation rate in freeze-all cycles.

METHODS

Matched cohort study → March 2019 – March 2021

236 freeze-all ICSI cycles → 2,768 injected oocytes

Matching: Female age

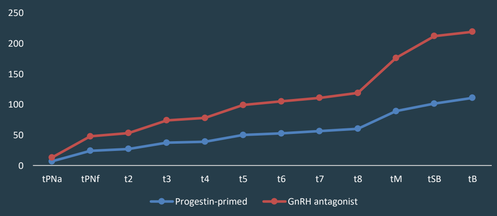
- Progesterone-primed group: 118 cycles, 1,360 embryos
- GnRH antagonist group: 118 cycles, 1,408 embryos

Using generalized linear models, followed by the Bonferroni post hoc test

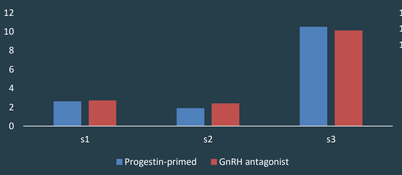
- ✓ Embryos were cultured in a TLI incubation system
- ✓ Morphokinetics and ICSI outcomes were compared between the groups

RESULTS

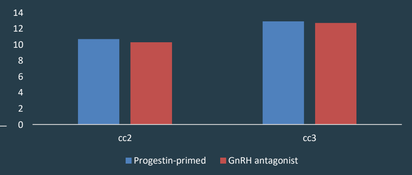
Morphokinetic development in embryos derived from Progestin Primed and GnRH Antagonist Groups



Timing to complete synchronous divisions in embryos derived from Progestin Primed and GnRH Antagonist Groups



Timing to complete cell cycles in embryos derived from Progestin Primed and GnRH Antagonist Groups



Comparison of clinical outcomes between the progestin-primed and the GnRH antagonist group

Variable	Progestin-primed group	GnRH antagonist group	p value
Cycles	118	118	
Implantation rate (%)	64.6 ± 6.1	44.4 ± 6.3	**0.002**
Pregnancy rate (%)	64.4	49.0	0.104
Miscarriage rate (%)	2.6	8.6	0.554

CONCLUSIONS

In conclusion, exogenous progesterone replaces the use of a GnRH antagonist for prevention of premature LH surge, with the advantages of oral administration and potential cost reduction. However, when there is no indication to freeze-all (e.g. PGT cycles, fertility preservation or cycles at high OHSS risk), the use of progestin may not be economically worthwhile and should be considered with caution.