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Progestin-Primed Ovarian Stimulation: A Viable Alternative to Conventional GnRH-Antagonist Protocols Preserving Oocyte Quality – Insights from an artificial intelligence

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OBJECTIVE

Progestin-primed ovarian stimulation (PPOS) has emerged as a promising alternative to conventional GnRH-antagonist protocols for preventing premature LH surge and ovulation. The PPOS protocol offers advantages such as oral administration and lower costs. However, there are ongoing concerns regarding its potential impact on oocyte biology and quality. The aim of this study was to investigate whether PPOS maintains oocyte quality, as assessed by MAGENTA™, and achieves reproductive outcomes comparable to conventional GnRH-antagonist protocols in ICSI cycle.

METHOD

Retrospective Cohort Study → Jan 2020 – May 2024 → Oocyte images captured pre-ICSI → MAGENTA™ Score (MS: from 0-10)

PPOS : 434 cycles 2,688 oocytes

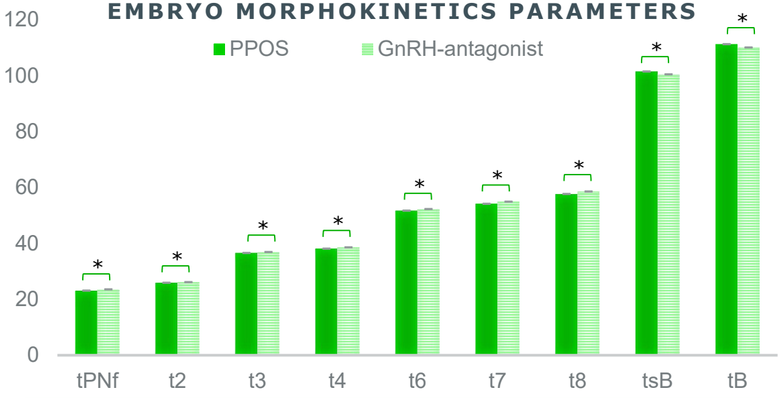
Vs.

GnRH-antagonist: 1432 cycless 9,046 oocytes

Evaluated Parameters

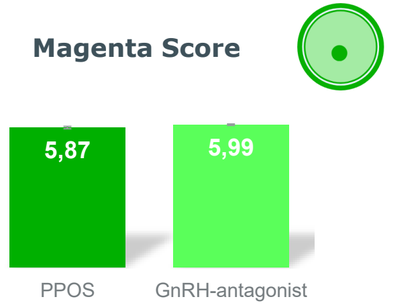
- Magenta Score
- KIDScore-D5
- Embryo kinetics
- Labortory and clinical outcomes

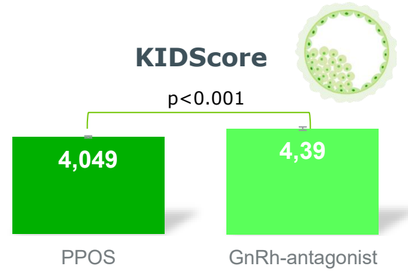
RESULTS

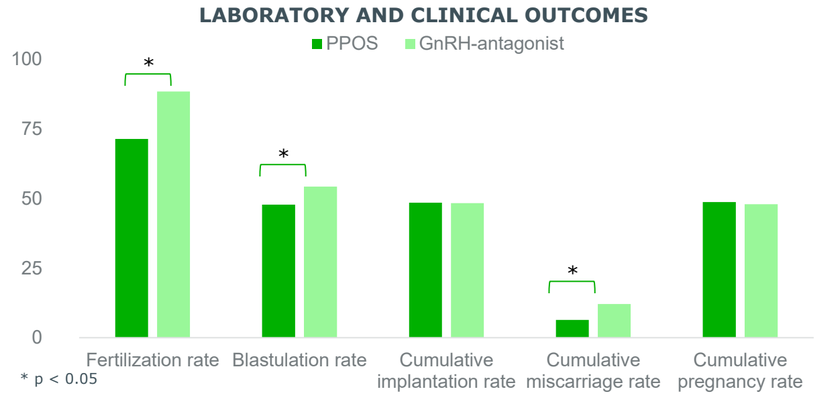


	S1	S2	S3	CC2
PPOS	1.96 ± 0.087	1.12 ± 0.120	6.21 ± 0.320	7.82 ± 0.20
GnRH-antagonist	2.22 ± 0.030*	1.42 ± 0.040*	7.22 ± 0.110*	8.68 ± 0.07*

* $p < 0.05$







* $p < 0.05$

CONCLUSION

Although PPOS is associated with slower final embryo development, it preserves AI-assessed oocyte quality comparable to GnRH-antagonist, achieves similar clinical outcomes, and reduces miscarriage rates