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EFFECT OF ADDING LH TO CONVENTIONAL FSH-ONLY PROTOCOLS ON AI-ASSESSED OOCYTE QUALITY, EMBRYO MORPHOKINETICS, AND ICSI OUTCOMES

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OBJECTIVE

The addition of LH to FSH in stimulation protocols is suggested to induce a more physiological response compared to FSH alone. This combination appears to enhance both the quantity and quality of oocytes. MAGENTA™ is an AI tool that evaluates images of mature denuded oocytes, providing analyses that correlate with subsequent blastocyst development. Therefore, the present study evaluated the effect of the addition of LH to a standard FSH-only protocol on AI-assessed oocyte quality, embryo morphokinetics, and ICSI outcomes.

METHODS

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

FSH-only:
1,620 cycles
9,839 oocytes

Vs.

FSH+LH:
443 cycles
2,725 oocytes

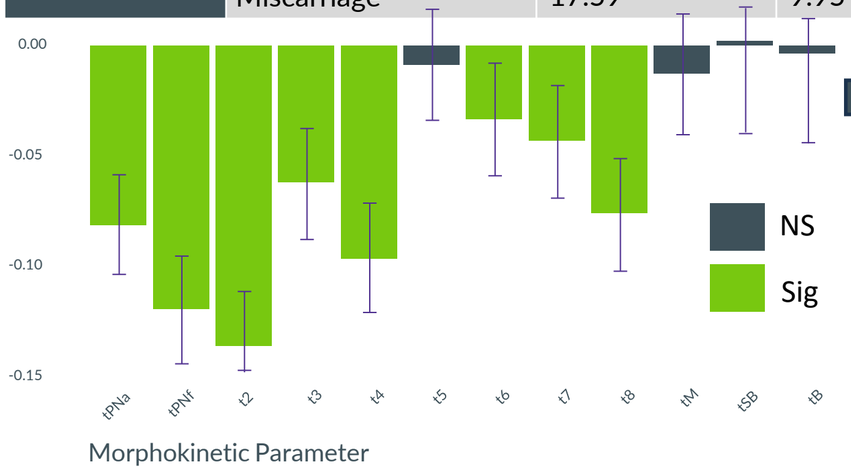
Evaluated Parameters

- MS
- Embryo kinetics:
- KIDScore-D5
- Clinical outcomes

RESULTS

Comparison Between FSH-only and FSH+LH

Age	Variable	FSH-only	FSH+LH	P value
All ages	Cycles	443	1,620	
	Embryos	2,725	9,839	
	MAGENTA™ Score	5.9 ± 0.06	5.9 ± 0.03	0.138
	Blastulation rate (%)	52.8 ± 1.50	56.7 ± 0.79	0.022
≤35 Years	Cycles	113	292	
	Embryos	930	2,359	
	MAGENTA™ Score	5.9 ± 0.06	6.4 ± 0.10	<0.001
	Blastulation rate (%)	57.0 ± 2.50	65.4 ± 1.56	0.004
>36 Years	Cycles	330	1,328	
	Embryos	1,794	7,480	
	MAGENTA™ Score	5.7 ± 0.07	5.8 ± 0.03	0.215
	Blastulation rate (%)	32.9 ± 1.05	33.6± 1.02	0.77
	Miscarriage	17.59	9.95	0.030



Faster embryo development in FSH + LH Group

Pregnancy and Implantation didn't differ

CONCLUSION

The addition of LH to conventional FSH protocols improved blastocyst formation, accelerated embryo development, and enhanced oocyte quality, particularly in younger patients, while reducing miscarriage rates in older women.