Retrospective study comparing IVF antagonist protocols utilizing highly purified human menopausal gonadotropin and three different recombinant FSH preparations

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INTRODUCTION

This retrospective study compares clinical and laboratory outcomes of 3 antagonist mixed protocols for IVF (In vitro fertilization) utilizing:

A = HP-hMG; Menopur® + follitropin alfa (Gonal-F®)
B = HP-hMG; Menopur® + follitropin beta (Puregon®)
D = HP-hMG; Menopur® + follitropin delta (Rekovelle®)

METHODS

Study Design:
Retrospective study conducted at **clinique ovo** and Olive Fertility Centre from January 2018 to September 2019.

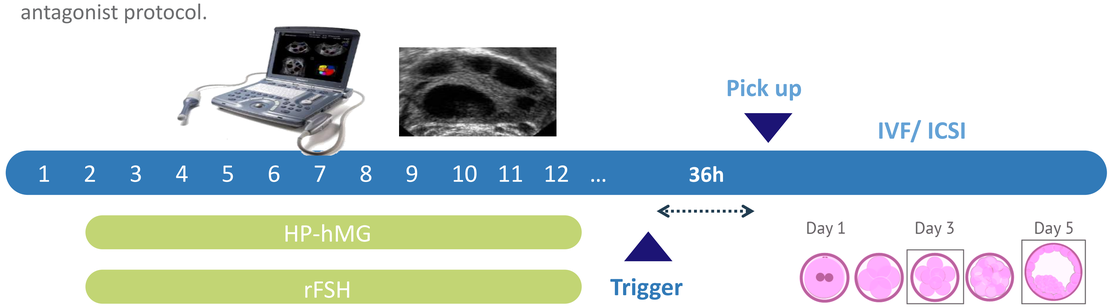
Study Participants:
Women aged 18-42 years.
Total of subjects: 267 (89 subjects per group).

Procedures:
Enrollment of patients undergoing controlled ovarian stimulation for in vitro fertilization (IVF) using a mixed antagonist protocol.

Triggering criteria:
At least 3 follicles ≥ 17mm at ultrasound.
Embryos cultured until day 5 or 6.

Study Outcomes:
Clinical and laboratory outcomes were evaluated

Statistical Methods:
A single-way ANOVA with post-hoc Tukey multiple comparison test was used.



RESULTS

The mean age of all subjects was 34.62 years (SD 3.74) and weight 71.65 kg (SD 14.61). No significant differences were observed in age (p=0.19) or weight (p=0.78) among groups.

	GROUP A	GROUP B	GROUP D &	*P-value*
OVARIAN STIMULATION				
Total dose HP-hMG (IU)	2109 +/- 811	1567 +/-687	1918 +/-928	< 0.01 *
Total dose rFSH (IU)	2160 +/-909	2380 +/-620	1794 +/-522	< 0.01 *
Total dose FSH (IU)	4269 +/-1217	3947 +/-1110	3713 +/-1353	0.01 *
Duration of stimulation (days)	11.6 +/-1.5	10.6 +/-1.37	11.4 +/-1.3	< 0.01 *
LABORATORY OUTCOMES				
MII oocytes	11.5 +/-7.1	10.28 +/-5.1	10.9 +/-7.4	0.46
Fertilized oocytes	8.18 +/-5.41	6.96 +/-3.77	8.56 +/-5.32	0.07
Utilizable blastocysts	3.9 +/-3.1	3.6 +/-2.5	4.8 +/-3.5	0.029 *
FSH/Blastocyst ratio **	541.69	653.78	370.56	0.034 *

& Follitropin delta is administered in micrograms. The dose equivalence used was 10 µg of follitropin delta = 150 IU of follitropin alpha and beta
* Statistically Significant
** Calculated as FSH total dose (IU) per number of utilizable blastocysts obtained

The results shown in the table above demonstrate that group D used less gonadotropins despite a longer stimulation. No statistically significant differences were observed in the number of MII or fertilized oocytes. However, the **number of good quality utilizable blastocysts was significantly higher** in group D than in group A or B. The FSH/blastocyst ratio was significantly lower in group D than in the other groups, showing the need for **less gonadotropins per embryo obtained** in this group.

CONCLUSION

Mixed protocol of HP-hMG and follitropin delta (group D) yielded a significantly higher number of good quality, utilizable blastocysts even though MII and fertilized oocytes were comparable between the groups. The total dose of FSH required to obtain utilizable blastocyst was significantly lower in group D compared to the other groups, which gives this group an advantage in terms of cost effectiveness.