

COMPARISON OF OUTCOMES OF RESCUE IVF IN HIGH-RESPONSE GONADOTROPINS/LETROZOLE IUI CYCLES.

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INTRODUCTION

Letrozole used in combination with gonadotropins for ovulation induction in intra-uterine insemination(IUI) cycle has been shown to be more cost-effective than the utilization of gonadotropins alone as lower doses of gonadotropins are used with comparable pregnancy rates. Rescue in-vitro fertilization (IVF) has been used in high response gonadotrophin/letrozole IUI cycles in order to minimise the risks of ovarian hyperstimulation and multiple gestation. We performed this retrospective cohort analysis to compare outcomes of rescue IVF converted cycles due to excessive response to letrozole and gonadotropins stimulation in originally planned IUI cycles in polycystic ovaries syndrome (PCOS) and non PCOS patients.

METHODS

Forty-six patients, attending **clinique ovo** (teaching fertility center affiliated with the University of Montréal) from March 2010 to August 2011, were converted from high response Gonadotropins/Letrozole IUI cycles to "rescue" IVF. Twenty-one patients had diagnosis of PCOS while 25 were non PCOS patients. Primary outcomes included comparison of clinical and biochemical pregnancies rates among the two groups, secondary outcomes included comparison of: estradiol (E2) and progesterone levels, endometrial thickness, follicular size, oocytes number, fertilization and implantation rates.

RESULTS

The two groups were comparable in terms of body mass index but non PCOS patients were mildly older than PCOS (33.12 ± 3.55 vs. 31.04 ± 2.78 years, $p=0.04$) with higher baseline FSH (6.55 ± 1.6 vs. 5.68 ± 0.87 UI/l, $p=0.03$). PCOS group demonstrated higher baseline AMH (4.36 ± 1.83 vs. 1.54 ± 1.29 nmol/l, $p<0.001$).

Biochemical and clinical pregnancy rates per cycle were comparable in PCOS and non PCOS groups (47.6% versus 48%; $p=1.0$ and 47.6% vs. 44%; $p=1.0$) respectively.

Fig. 1 - Patient's characteristics

	PCOS N=21	Non PCOS N=25	Valeur p
Age (years)	31.05 ± 2.78	33.12 ± 3.55	0.04
BMI	24.64 ± 5.5	23.06 ± 4.96	0.41
AMH (ng/ml)	4.36 ± 1.83	1.54 ± 1.29	< 0.001
FSH (mUI/l)	5.68 ± 0.87	6.55 ± 1.6	0.03
E2 (pg/ml)	144.3 ± 39.43	157 ± 77.39	0.49

Fig. 3 - IVF cycles outcomes

	PCOS N=21	Non PCOS N=25	Valeur p
Number of retrieved oocytes	10.14 ± 5.36	8 ± 0.75	0.12
Number of MII oocytes	9.57 ± 6.27	6.64 ± 3.70	0.07
Fertilization rate (%)	68 ± 24.8	66 ± 24.9	0.8
Transfer rate (%)	19 (90.5%)	25 (100%)	0.2
Number of embryos	3.29 (2.63)	2.76 (1.59)	0.43
Number of frozen embryos	2.24 (2.59)	1.68 (1.65)	0.4

The number of follicles between 10 and 14 mm on the day of conversion and the number of follicles more than 14mm on the day of HCG were statistically higher in PCO group compared to non PCOS group (7.48 ± 4.11 vs. 4.12 ± 3.1 , $p=0.003$) and (10.43 ± 4.57 vs. 7.92 ± 2.4 , $p=0.03$) respectively. There was no statistical difference between the two groups in terms of E2, progesterone, endometrial thickness on the day of HCG, FSH doses required for stimulation, number of retrieved oocytes, number of mature oocytes, resulting embryos and frozen embryos.

Fig. 2 - Cycle's characteristics

	PCOS N=21	Non PCOS N=25	Valeur p
Follicules count 10 - 14 mm Conversion day	7.48 ± 4.11	4.12 ± 3.1	0.003
Follicules count >14 mm Conversion day	3.81 ± 2.68	4.64 ± 2.31	0.26
Follicules count 10-14mm on day of HCG	5.29 ± 3.73	3.4 ± 2.5	0.05
Follicules count >14 mm on HCG day	10.43 ± 4.57	7.92 ± 2.40	0.03
E2 on conversion day (pg/ml)	1042 ± 792	1744 ± 1468	0.15
E2 on HCG day (pg/ml)	2982 ± 2115	2794 ± 2211	0.77
Progesterone HCG day (ng/ml)	2.72 ± 1.33	2.36 ± 0.94	0.29
Endometrial thickness (mm)	9.87 ± 1.84	9.76 ± 1.74	0.83
Total FSH doses (UI)	926 ± 409	1050 ± 362	0.28

Fig. 4 - Biochemical and clinical pregnancy rate

	PCOS N=21	Non PCOS N=25	Valeur p
Biochemical pregnancy rate per cycle n (%)	10/21 (47.6%)	12/25 (48%)	1.0
Clinical pregnancy rate per cycle (%)	10/21 (47.6%)	11/25 (44%)	1.0
Biochemical pregnancy rate per transfer (%)	10/19 (52.6%)	12/25 (48%)	1.0
Clinical pregnancy rate per transfer (%)	10/19 (52.6%)	11/25 (44%)	0.76
Ovarian Hyperstimulation	0	0	

CONCLUSIONS

Conversion of high responder gonadotropins/letrozole/IUI patients to IVF seems to be a good alternative to cycle cancellation in both PCOS and non PCOS patients with comparable pregnancy rates. Further studies with larger sample are recommended in the future.

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