COMPARISON BETWEEN THE EFFECT OF FIXED AND ASCENDING DOSE OF ESTROGEN DURING ENDOMETRIAL PREPERATION FOR FROZEN EMBRYO TRANSFER

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Introduction

Several preparation methods have been proposed for FET in artificial cycles. Exogenous estrogen is administered early in the follicular phase in order to induce endometrial proliferation and inhibit spontaneous ovulation, with progesterone added days before the embryo transfer.. Estrogen can be given as an oral or a vaginal tablet, a transdermal patch, and a subcutaneous or intramuscular injection, with no significant differences in outcomes.

On our study we aimed to compare between two protocols of estrogen administration either ascending dose or fixed constant dose starting from day two of cycle.

This study was designed as a prospective clinical trial. It was conducted in 84 patients were divided into two treatment groups .the first group underwent endometrial preparation by a constant dose of (Estradiol valerate) in a form of Progynova® 6 mg/day orally each day form second day of menstrual period of a spontaneous or induced cycle until endometrial thickness (> 9 mm, < 14 mm) ,on the other hand the second group underwent endometrial preparation an ascending (Estradiol valerate) in a form of Progynova® orally 2 mg/day from day (1: 5), 4 mg/ day from day (6:10), 6 mg from day 10 until endometrial thickness (> 9 mm, < 14 mm)

Aim of the work

The aim of this study was to compare the effectiveness of addition of fixed and ascending dose of estrogen during endometrial preparation for frozen embryo transfer (FET).

Patients and Methods

PATIENTS: A minimal total sample size of (84) females undergoing FET (42 per group) is needed to assess an assumed difference of (0.5 mm) in endometrial thickness between a group of patients receiving a constant dose of oral estrogen and another group receiving an ascending oral estrogen to compare the effectiveness of these different doses during endometrial preparation for frozen embryo transfer assuming equal group standard deviation of (0.8) using a two sided independent t test, a significance level of 0.05 and 80% power. (PASS program version 20).

METHODS:

1-Group 1 (control): 42 female patients were given a constant dose of (Estradiol valerate) in a form of Progynova® 6 mg/day orally each day form second day of menstrual period of a spontaneous or induced cycle until endometrial thickness (> 9 mm, < 14 mm) otherwise the cycle was cancelled.

Group 2 (casas): 42 female patients were given an ascending (Estradiol valerate) in a form of Progynova® orally 2 mg/day from day (1: 5), 4mg/ day from day (6:10), 6mg from day 10 until endometrial thickness (>9mm,<14 mm) otherwise the cycle was cancelled.

Primary outcome measures were:

The biochemical pregnancy rate (βhcg ≥ 10 IU/l) 14 days after embryo transfer.

2-The secondary outcome measures were:

- Clinical pregnancy confirmed by observing embryonic sac and fetal cardiac pulsations 2 weeks after positive pregnancy test by TVS.
- Abortion rate (which is defined as proportion of cases whose pregnancy was terminated before 20 weeks gestation).
- Live birth rate (defined as proportion of cases that had a viable fetus after completing 20 weeks of gestation).

Results

Table 1: Comparison between the two studied groups regarding serum estradiol level on day 10 of the cycle and early morning on the day of embryo transfer day

Serum estradiol	Cases (n = 42)	Control (n = 42)	t	P
On day 10 of cycle				
Min. – Max.	98.0 – 288.0	98.0 – 220.0	3.235*	0.002*
Mean ± SD.	178.5 ± 50.86	144.4 ± 45.79		
Median (IQR)	199.0(120.0 – 205.0)	120.0(100.0 – 200.0)		
Early morning on the day of embryo transfer				
Min. – Max.	280.0 – 320.0	280.0 – 320.0	0.151	0.880
Mean ± SD.	301.4 ± 13.29	301.9 ± 14.86		
Median (IQR)	302.5 (288.0 – 310.0)	300.0 (290.0 – 310.0)		

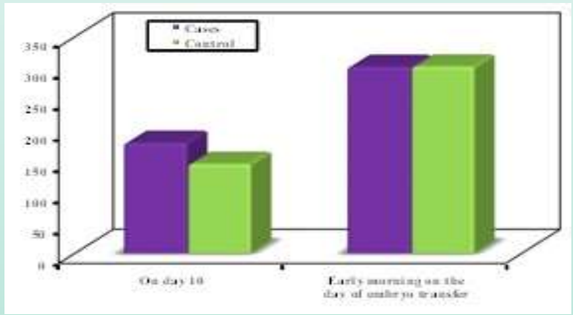
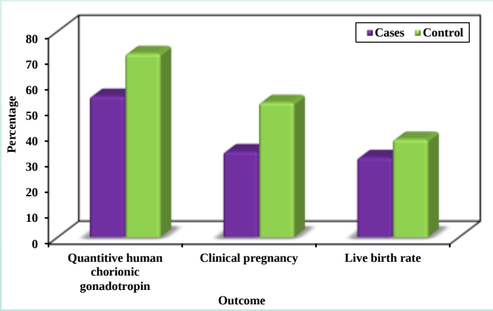


Table 2: Comparison between the two studied groups regarding the outcome

Outcome	Cases (n = 42)		Control (n = 42)		χ^2	p
	No.	%	No.	%		
Quantitive human chorionic gonadotropin (BHCG)	23	54.8	30	71.4	2.505	0.113
Clinical pregnancy	14	33.3	22	52.4	3.111	0.078
Live birth rate	13	31.0	16	38.1	0.474	0.491



Conclusion

From the findings of this study, we can conclude that the clinical pregnancy rate was not significantly higher in increased estrogen group compared to fixed estrogen group. Further clinical studies are needed to investigate the influence of a mid-cycle change in estrogen dose and the influence on obstetrical outcomes that are related to placentation.