**PREDICTIVE VALUE OF SERUM ESTRADIOL LEVELS FOR CLINICAL PREGNANCY IN FROZEN-THAWED EMBRYO TRANSFER CYCLES.**

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**Abstract Body**

INTRODUCTIONIn frozen embryo transfer cycles (FET), estrogen and progesterone are administered sequentially to synchronize embryo transfer with the endometrial implantation window. Estradiol is critical for endometrial and placental development. Elevation of estradiol has been shown to have an adverse effect on endometrial receptivity in fresh cycles and have been correlated with a decrease in implantation rates. High levels of estradiol in IVF cycles have been associated with adverse obstetric outcomes. Recent studies reported that high levels of estradiol do not negatively impact pregnancy in FET cycles.OBJECTIVEEstablish E2 levels prior to the onset of luteinization as a predictive value of clinical pregnancy in FET cycles and assess the correlation between serum E2 levels prior to luteinization and clinical pregnancy rate (CPR).MATERIAL AND METHODSRetrospective of FET cycles from November 2016 to January 2019. E2 levels were divided by quartiles (E2 < 261; 261-376; 377-489 and > 489 pg/ml) to assess the correlation between E2 levels and CPR. RESULTSA total of 54 FET cycles, the overall clinical pregnancy rate was 57.4%, and LBR and ongoing pregnancy was 46.3%. Serum E2 prior to initiation of luteinization with progesterone was significantly higher in patients who resulted in clinical pregnancy (441 ± 194 VS 337 ± 140 pg/ml) p= 0.0304). Patients with clinical pregnancy took fewer days of endometrial preparation with E2 valerate prior to initiation of progesterone. The ROC curve reported that E2 levels > 377 pg/ml were associated with clinical pregnancy with sensitivity of 80% and specificity of 65% (p= 0.54). CPR was significantly higher (71.4% versus 42.3%) with E2 levels above 377pg/ml (p=0.0393).CONCLUSIONSerum estradiol levels on the day of luteinization, in autologous FET cycles could positively impact the clinical pregnancy rates. Significant upward correlation was found between serum estradiol and clinical pregnancy.

**Abstract image**

# PREDICTIVE VALUE OF SERUM ESTRADIOL LEVELS FOR CLINICAL PREGNANCY IN FROZEN-THAWED EMBRYO TRANSFER CYCLES.

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## Introduction:

In frozen embryo transfer cycles (FET), estrogen and progesterone are administered sequentially to synchronize embryo transfer with the endometrial implantation window. Estradiol is critical for endometrial and placental development. Elevation of estradiol has been shown to have an adverse effect on endometrial receptivity in fresh cycles and have been correlated with a decrease in implantation rates. High levels of estradiol in IVF cycles have been associated with adverse obstetric outcomes. Recent studies reported that high levels of estradiol do not negatively impact pregnancy in FET cycles.

## Objective:

Establish E2 levels prior to the onset of luteinization as a predictive value of clinical pregnancy in FET cycles and assess the correlation between serum E2 levels prior to luteinization and clinical pregnancy rate (CPR).

## Material y methods:

Retrospective of FET cycles from November 2016 to January 2019. E2 levels were divided by quartiles (E2 < 261; 261-376; 377-489 and > 489 pg/ml) to assess the correlation between E2 levels and CPR.

## Results:

A total of 54 FET cycles, the overall clinical pregnancy rate was 57.4%, and LBR and ongoing pregnancy was 46.3%. Serum E2 prior to initiation of luteinization with progesterone was significantly higher in patients who resulted in clinical pregnancy (441 ± 194 VS 337 ± 140 pg/ml) p= 0.0304). Patients with clinical pregnancy took fewer days of endometrial preparation with E2 valerate prior to initiation of progesterone. The ROC curve reported that E2 levels > 377 pg/ml were associated with clinical pregnancy with sensitivity of 80% and specificity of 65% (p= 0.54). CPR was significantly higher (71.4% versus 42.3%) with E2 levels above 377pg/ml (p=0.0393).

## Conclusion:

Serum estradiol levels on the day of luteinization, in autologous FET cycles could positively impact the clinical pregnancy rates. Significant upward correlation was found between serum estradiol and clinical pregnancy.

**TABLE 1. Demographic and epidemiological characteristics of patients that resulted in and without clinical pregnancy after a cycle of thawed embryo transfer.**

| | Clinical pregnancy N=31 | No Clinical pregnancy N= 23 | p |
|---|---|---|---|
| Female Age | 34.61 ± 2.94 | 35.09 ± 3.14 | 0.0882 |
| Male Age | 36.77 ± 3.93 | 36.64 ± 5.09 | 0.8504 |
| BMI mujer | 25.30 ± 2.77 | 26.82 ± 3.31 | 0.1198 |
| FSH | 5.7 ± 2.13 | 5.5 ± 1.71 | 0.7018 |
| E2 | 47.05 (33-60) | 46 (36.7-62.5) | 0.5341 |
| AFC | 13 (8-18) | 12 (9-24) | 0.8791 |
| Total dose of gonadotropin | 2250 (1875-3000) | 2475 (2025-3225) | 0.2935 |
| # Days of endometrial stimulation. | 12 (12-12) | 13 (12-15) | 0.0210* |
| # Oocyte retrieve | 11 ± 5.8 | 8.96 ± 3.49 | 0.5807 |
| Meta II | 8.19 ± 4 | 6.8 ± 2.8 | 0.1672 |
| Fertilization rate | 238 (69.79) | 141 (68.45) | 0.7405 |
| Endometrial Thickness on day of progesterone | 10 (8.3-11) | 9.6 (8.4-11.04) | 0.6980 |
| E2 on day of luteiniazation | 441 ± 194 | 337 ± 140 | 0.0304* |
| P4 on day of luteiniazation | 0.25 (0.20-0-57) | 0.20 (0.20-0.37) | 0.2651 |
| # Embryo cryopreserved | 4 (2-6) | 3 (3-4) | 0.3294 |
| # Embryo transfer | 2 (2-2) | 2 (2-2) | 0.9648 |
| Embryo transfer N(%) | | | |
| 1. Cleavage | 5 (16.12) | 7 (30.43) | 0.3217 |
| 1. Blastocyst | 26 (83.87) | 16 (60.15) | |