

Impact of Serum Estrogen and Progesterone Levels in the Outcome Pregnancy Rate in Frozen Embryo Transfer Cycles. A Prospective Cohort Study

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Abstract : Title: Impact of serum estrogen and progesterone levels in the outcome pregnancy rate in frozen embryo transfer cycles. A prospective cohort study Objective: The aim of the current study was to evaluate the effect of serum estradiol (E2) and progesterone (P4) levels at different time points on pregnancy outcomes in frozen embryo transfer (FET) cycles. Materials & Method: A prospective cohort study was performed in patients undergoing frozen embryo transfer. Patients under age 37 years of age with at least one good blastocyst or three good day 3 embryos were included in the study. For endometrial preparation, 14 days of oral estradiol use (2X2 mg for 5 days, 3X2 mg for 4 days, and 4X2 mg for 5 days) was followed by vaginal progesterone twice a day and 50 mg intramuscular progesterone twice a day. Embryo transfer was scheduled 72-76 hrs or 116-120hrs after the initiation of progesterone. Serum E2 and P4 levels were examined at 4 times a) at the start of the menstrual cycle prior to the hormone supplementation. b) on the day of P4 start. c) on the day of ET. d) on the third day after ET. Result: A total 41 women were included in this study (mean age 31.8; SD 2.8). Clinical pregnancy rate was 65.55%. Serum E2 levels on at the start of the menstrual cycle prior to the hormone supplementation and on the day of P4 start were high in patients who achieved pregnancy compared to who did not ($P=0.005$ and $P=0.019$ respectively). P4 levels on on the day of ET were also high in patients with clinical pregnancy. On the day of P4 start, a serum E2 threshold of 186.4 pg/ml had a sensitivity of 82%, and P4 had a sensitivity of 71% for the prediction of clinical pregnancy at the threshold value 16.00 ng/ml. Conclusion: In women undergoing FET with hormone replacement, serum E2 level >186.4 pg/ml on the day of the start of progesterone and serum P4 levels >16.00 ng/ml on embryo transfer day are associated with clinical pregnancy.

Keywords : serum estradiol, serum progesterone, clinical pregnancy, frozen embryo transfer

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