

31: ELEVATED ESTRADIOL LEVELS DURING HORMONE REPLACEMENT THERAPY IN FROZEN EMBRYO TRANSFER CYCLES NEGATIVELY AFFECTS IMPLANTATION RATE OF EUPLOID EMBRYOS

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Objective

Supraphysiologic levels of estradiol during fresh in vitro fertilization cycles have been associated with poor pregnancy outcomes. The objective of this study was to determine if peak serum estradiol concentrations during hormone replacement therapy (HRT) in preparation for frozen embryo transfer (FET) affects implantation rate of euploid embryos.

Design

Retrospective analysis of 99 HRT-FET cycles with euploid embryo(s).

Material and Methods

Charts were reviewed for patients who underwent a HRT-FET cycle with a euploid embryo(s) between January 2017 and April 2018. Patients received oral and vaginal estradiol or oral, vaginal and transdermal estradiol until a minimum 7.5 mm trilaminar lining was achieved. Progesterone supplementation was administered intramuscularly and vaginally for 5 days prior to embryo transfer. Serum estradiol levels were measured before progesterone was initiated. Implantation rate was determined by the number of heartbeats visualized divided by the number of embryos transferred. The statistical significance was set at $p < 0.05$, and data was analyzed using a two sample t-test.

Results

Implantation rate for patients with a peak E2 < 1000 pg/ml (63.2%) was higher ($p = 0.014$) than for patients with a peak E2 > 1000 pg/ml (45.9%). There was no statistical difference in the number of embryos transferred or age of patients between groups. We can say with 95% confidence that patients with a peak E2 < 1000 pg/ml will have 2.48 to 41.9 higher implantation rate than patients with E2 > 1000 pg/ml.

Conclusions

Our analysis demonstrated that elevated serum estradiol levels during a HRT-FET cycle results in a lower implantation rate. The use of preimplantation genetic testing served to minimize implantation failure as a result of aneuploidy. Based on this data, we think estradiol administration should be adjusted to maintain a lower estradiol level during HRT-FET cycles. Larger, prospective studies need to be conducted to determine the optimal range of estradiol in a HRT-FET cycle to optimize implantation rates.

Support

None