

55: IMPACT OF DIFFERENT METHODS OF ENDOMETRIAL PREPARATION ON PEAK SERUM ESTRADIOL AND PREGNANCY OUTCOMES IN FRESH IN VITRO FERTILIZATION (IVF)/INTRACYTOPLASMIC SPERM INJECTION (ICSI) AND FROZEN EMBRYO TRANSFER (FET) CYCLES

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Background

Supraphysiologic serum estradiol in IVF/ICSI is associated with adverse pregnancy outcomes. FET avoids this environment. Multiple FET endometrial preparation protocols exist, each differing in impact on serum estradiol.

Objective

Examine the impact of fresh IVF/ICSI and different FET endometrial preparation protocols on serum estradiol concentration and pregnancy outcomes.

Design

Retrospective cohort study.

Material and Methods

Eligible patients who underwent IVF/ICSI and FET between January 1, 2014 and December 31, 2016 at an academic fertility clinic were included. Research ethics board approval was obtained. Data on peak serum estradiol and subsequent pregnancy outcomes were available. FET cycles used one of four endometrial preparation protocols - natural cycle(NC), hormone replacement using oral estradiol(HRT-O), HRT using vaginal estradiol(HRT-V), mild controlled ovarian stimulation(COS). Mean peak estradiol was compared using Kruskal-Wallis test. Biochemical pregnancy loss, first trimester miscarriage, and live birth rates were compared using Fisher's exact test.

Results

2223 cycles resulting in 576 live births were included. Mean peak estradiol (pmol/L \pm standard deviation) was significantly different between protocols - fresh IVF/ICSI 8902 \pm 3596 (n=953), NC 1252 \pm 520 (n=464), HRT-O 1453 \pm 594 (n=146), HRT-V 7470 \pm 3850 (n=639), and COS 3280 \pm 1930 (n=21), p<0.001. Biochemical pregnancy loss rate was significantly different between groups - fresh IVF 12% (n=55), NC 13% (n=28), HRT-O 23% (n=12), HRT-V 23% (n=72), COS 22% (n=2), P=0.001. Live birth rate per transfer was significantly different between groups - fresh IVF 28% (n=271), NC 29% (n=134), HRT-O 20% (n=29), HRT-V 21% (n=137), COS 24% (n=5), P=0.005. First trimester miscarriage rate did not differ between groups.

Conclusions

The endometrial preparation protocols result in different peak estradiol concentrations, biochemical pregnancy and live birth rates. Further analysis is warranted to determine whether this can be attributed to peak estradiol concentrations or other aspects of the cycle.

Support

None