

Endometrial preparation: Impact of estrogen duration of administration before frozen-thawed blastocyst transfer on live birth rate.

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Introduction

Different cycle regimens for endometrial preparation are used prior to frozen embryo transfer. Currently, one effective method is the hormonal replacement therapy with a sequential regimen with estrogen (E2) and progesterone, which aims to mimic the endocrine exposure of the endometrium in the normal cycle. There nonetheless remains a lack of knowledge concerning the optimal duration of exogenous E2 administration before transfer. The aim of this study was to investigate if the duration of exogenous E2 administration before frozen –thawed blastocysts transfer could affect life birth rate.

Materials and methods

This retrospective cohort study was conducted in a tertiary care university hospital between 01/01/2012 and 31/12/2015. Main inclusion criteria's were having a frozen-thawed blastocyst transfer with an artificial endometrial preparation using exogenous oestrogen (E2). A total of 1377 frozen – thawed blastocysts transfer were allocated to 4 groups according to the duration of E2 administration: 8-21days of exogenous E2 (Group A, n=330), 22-28 days of exogenous E2 (Group B, n=665), 29-35 days of exogenous E2 (Group C, n= 289) and 36-48 days of exogenous E2 (Group D, n= 93). The main outcome measured was the live birth rate following frozen – thawed blastocysts transfer. Statistical analysis were conducted using univariate and multivariate logistic regression models.

Results

Live birth rates significantly decrease with the increase of E2 duration before frozen –thawed blastocysts transfer (group A: n= 98 (29.70%), OR 1; Group B: n= 185 (27.82%), OR 0.91 CI95% 0.68-1.22; Group C: n= 63 (21.80%), OR 0.66 CI95% 0.46-0.95 and Group D: n=16 (17.20%), OR 0.49 IC95% 0.27-0.89). In contrast, early pregnancy loss rate significantly increase with the increase of E2 duration before frozen –thawed blastocysts transfer (group A: n= 41(28.47%), OR 1; Group B: n= 89 (31.79%), OR 1.17 CI95% 0.75-1.82; Group C: n=35 (34.31%), OR 1.31 CI95% 0.76-2.27 and Group D: n= 17(48.57%), OR 2.37 IC95% 1.12-5.05). Obstetrical and neonatal outcomes were not significantly different among groups. After multivariate logistic regression, E2 duration of administration longer than 28 days before frozen-thawed blastocyst transfer was found to be an independent predictive factor of life birth rate (29-35 days versus ≤21days: OR 0.68 95%CI 0.460-0.989; 36-48 days versus ≤21days: OR 0.51 95%CI 0.269-0.953).

Conclusion

Oestrogen exposure time before frozen – thawed blastocysts transfer impact live birth rate. In order to give patients the best chance to obtain a live birth after frozen –thawed blastocysts transfer, it seems important to limit estradiol duration of administration before ET. This study brings new insight to endometrial preparation using hormonal replacement therapy before frozen blastocysts transfer.

Keywords : Key words: Live birth rate, Blastocyst, frozen-thawed embryo transfer; Endometrial preparation; Estrogen exposure

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