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ORAL CONTRACEPTIVE PRETREATMENT DOES NOT ALTER LIVE BIRTH RATES IN PGT-A SCREENED FROZEN EMBRYO TRANSFER CYCLES

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OBJECTIVE:

Oral contraceptives pills (OCPs) have been a long-standing adjuvant used for multiple purposes during ART treatment. Despite a widespread adoption of OCPs in many clinical settings, some studies have suggested that OCP utilization might exhibit a deleterious effect on IVF outcomes. Opponents have proposed the progesterone compound of OCPs may negatively affect endometrial receptivity[1]. Recently, one study showed pregnancy rates were negatively associated with OCP usage[2]. Furthermore, the utilization of OCPs has been associated with increased pregnancy loss rates in frozen embryo transfer (FET) cycles[3]. The majority of available published evidence about OCPs use has included data derived from fresh IVF cycle outcomes; however, data regarding the effect of OCPs pretreatment in euploid FETs is scarce. The objective of this analysis is to assess the effect of OCPs pretreatment on pregnancy rates in single euploid FET cycles.

DESIGN:

Retrospective analysis.

MATERIALS AND METHODS:

The study included patients who underwent a FET cycle from 2016-2020. PGT-A with *NGS was* performed in all cases. Cohorts were segregated in two groups based on OCPs pretreatment during the FET cycle: Group 1: OCP pretreatment; Group 2: Endometrial preparation cycles without OCP utilization. Patient demographics and IVF cycle outcomes were

assessed. Comparative statistics, multivariate regression and an adjusted mixed model with a GEE were utilized for statistical analyses. A sample size of 388 FET's per group was calculated to ensure an 80% power to detect a difference of 10% on live birth rates (LBR) (α=0.05).

RESULTS:

1,405 single euploid FET cycles with OCP pretreatment were compared to 4,622 control cycles. Significant differences were found in patient and oocyte ages between cohorts. No differences were found in AMH, BMI, and endometrial thickness at FET among cohorts. Also, no differences were found in number of good quality embryos transferred, implantation, clinical pregnancy (CPR), LBR, and clinical loss (CLR) rates. Gestational age and birth weight at delivery were similar among groups. After adjusting for confounders there was no correlation between the days of OCP utilization and lower LBR (R2=0.06, p=0.15). Finally, after adjusting for age, BMI, AMH, embryo quality and endometrial thickness, no association was found between OCP utilization and lower odds of implantation (OR 1.22 CI95% 0.9-1.6, p=0.18); CPR (OR 0.76 CI95% 0.5-1.1, p=0.17); LBR (OR 0.81 CI95% 0.6-1.1, p=0.26) or CLR (OR 1.07 CI95% 0.6-1.6, p=0.73).

CONCLUSIONS:

OCPs can safely be used for patient planning and to ensure that NGS results on analyzed embryos is available to support embryo selection decisions. Based on our findings, OCP pretreatment does not appear to affect implantation or live birth rates after the transfer of a euploid embryo within a synthetically prepared endometrium. Further studies focusing on endometrial genetic transcription patterns and their interactions with different hormonal preparations during the peri-implantation period should be performed in order to optimize and personalize the endometrial molecular microenvironment.

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