Hormone replacement therapy may increase the risk of early miscarriage during frozen embryo transfer cycles in patients with a history of cesarean section: a retrospective cohort study

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Abstract

Objective: To investigate the efficacies of three cycle regimens in women receiving FET with a history of CS: natural cycle (NC) treatment, hormone replacement therapy (HRT) and treatment with gonadotropin-releasing hormone agonist (GnRH-a) + HRT). **Design:** Retrospective cohort study. **Setting:** University-affiliated center. **Population:** Patients (N = 6,159) with a history of CS who fulfilled the inclusion criteria were enrolled in the study from January 2014 to December 2019. **Methods:** Reproductive outcomes of patients in the NC (n = 4,306) versus HRT (n = 1,007) versus GnRH-a + HRT groups (n = 846) were compared. **Main Outcome Measure:** The main outcome measure was the live birth rate per embryo transfer (ET). **Results:** The unadjusted odds of the miscarriage rate of singleton pregnancies were also significantly higher in the HRT-group compared with the NC-group (25.5% versus 20.4%, respectively). After adjusting for possible confounding factors, the early miscarriage rate and the miscarriage rate of singleton pregnancies remained significantly higher in the HRT-group than the NC-group. The clinical pregnancy rates in the NC-, HRT- and GnRH-a + HRT-groups of women with a history of CS was 48.8%, 48% and 47.1%, respectively, and the live birth rates were 37%, 34.1% and 35.7%, respectively. **Conclusion(s):** In women undergoing FET with a history of CS, HRT for endometrial preparation was associated with a higher early miscarriage rate, albeit after statistical adjustment for confounding factors. **Funding:** The National Science Foundation of China (81501328). **Key Words:** Caesarean section, endometrial preparation, frozen embryo transfer, miscarriage

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