

22th world congress on IVF

2024/11/7-9

Habous Cultural and Administrative Complex (MARRAKECH, Morocco)

ID21

Haruhisa Konishi, Hiroshi Matsumoto, Yoshiharu Nakaoka, Aisaku Fukuda, Yoshiharu Morimoto

Frozen-thawed embryo transfers in natural ovulation cycles have lower miscarriage rates than hormone replacement cycles

Hormone replacement cycles (HRC) are more frequently used than natural ovulation cycles (NC) for frozen-thawed embryo transfer. In recent years, NC has been reconsidered from the perspective of perinatal complications, but no consensus has been reached regarding abnormalities in early pregnancy. This time, we compared HRC and NC with a focus on the miscarriage rates.

From 2020 to 2022, we retrospectively examined the patient characteristics, clinical pregnancy rate, and miscarriage rate of 6,138 patients with 11,623 cycles of frozen-thawed embryo transfer performed at three facilities in our group from medical records. For statistical analysis, we used chi-square test and multivariate analysis.

There were 7822 cycles for HRC and 3801 cycles for NC, and no significant differences were observed in patient characteristics such as average age, endometrial thickness, history of delivery, history of miscarriage, BMI, and AMH. The clinical pregnancy rate with gestational sac (GS) was 36.6% in HRC and 37.6% in NC, and there was no difference. However, the miscarriage rate after confirmation of GS was 25.3% in HRC and 21.1% in NC ($P < 0.05$). There was also difference in miscarriage rate of over 40 years old between 38.9% in HRC and 32.4% in NC ($P < 0.05$). A similar trend was observed in euploid blast cell after PGT-A (HRC 143 cycles, NC 100 cycles). In multivariate analysis using miscarriage after GS confirmation, HRC was detected as a significant factor along with age, cleavage stage embryo transfer, and non-PGT-A.

The pregnancy rates are similar between HRC and NC, but the miscarriage rate is significantly lower in NC, suggesting that there are differences depending on the endometrial preparation method used in frozen-thawed embryo transfer. NC is considered to be the preferred method for adjusting the endometrium in cases where spontaneous ovulation can be expected.

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