Egyptian Fertility Sterility Society

The 28th Editorial

Are there differences between perinatal outcomes following frozen versus fresh embryo transfer in IVF,

Prof. Ibrahim Mahrous, Al Azhar University
Dr. Mohamed El Sherbiny, MOH

What Is Known Already?

Evidence of differences in perinatal outcomes following frozen versus fresh embryo transfers remains controversial. Such a research question for perinatal outcomes cannot be adequately addressed in randomized controlled trials, as large trials are generally underpowered for these outcomes, due to the limited number of adverse events (Chen et al., 2016; Zaat et al., 2021) [1-2]
A meta-analysis based on observational studies suggested that frozen embryo transfer was associated with a lower risk of small for gestational age (SGA) infants and preterm delivery, but a higher risk of large for gestational age infants compared with fresh embryo transfers (Maheshwari et al., 2018) [3]. However, these findings were not always consistent with those in subsequent large population-based cohort studies (Vidal et al., 2017; Smith et al.,2019; Westvik-Johari et al., 2021; Raja et al., 2022). [4-7]

What Is New?

A recent multicenter retrospective cohort study used routinely collected clinical data of 8081 women undergoing IVF who gave birth to 9243 babies (6125 from the frozen and 3118 from fresh transfer cycles) in 12 IVF clinics a between 2015 and 2021, with follow-up data up to 2023 [8].

I n this recent study, it is reported that the frozen transfer group were:

1- Less likely to be preterm (8.9% vs 13.7%, adjusted risk ratio (aRR) 0.66 0.58–0.76), low birth weight (5.3% vs 8.5%, aRR 0.66, 0.55–0.78), and small for gestational age (4.2% vs 7.9%, aRR 0.62, 0.51–0.75),

2- More likely to be caesarean section (57.5% vs 50.4%, aRR 1.14, 95% CI 1.09–1.19), high birth weight (10.1% vs 7.0%, aRR 1.43, 1.21–1.68), and large-for-gestational-age (20.0% vs 13.6%, aRR 1.37, 1.23–1.53).

The differences remained consistent when comparing hormone replacement or natural cycle frozen transfers to fresh transfers

Wider implications of the findings:

The results indicate that the differences in birth weight related to perinatal outcomes between frozen versus fresh embryo transfer cycles are unlikely due to the differences in the use of endometrial preparation protocols in frozen cycles, but may be attributed to other factors including impaired endometrial characteristics in fresh cycles or the process of vitrification and warming embryos in frozen cycles.

References

1-Chen ZJ, Shi Y,. et al N Engl J Med;375:523–533. 2016
2-Zaat T, Zagers M, Mol F, Goddijn M, et al. Cochrane Database Syst Rev;2:Cd011184. 2021
3- Maheshwari A, Pandey S, Amalraj Raja E etl.Hum Reprod Update;24:35–58. 2018
4-Vidal M, Vellve K, et al. Fertil Steril;107:940–947. 2017
5-Smith A, Tilling K, Lawlor DA, et al.. BMC Med;17:202. 2019
6-Westvik-Johari K, Romundstad et al. Med;18:e1003683. 2021
7- Raja E-A, Bhattacharya S, et al. . Fertil Steril;118:323–334. 2022
8- Haowen Zou 1, Deirdre Zander-Fox et al. Human Reproduction Open, 2 2026(1), hoag002