

Obstetric complications after frozen versus fresh embryo transfer in women with polycystic ovary syndrome: results from a randomized trial

Bo Zhang, M.D., Ph.D.,^a Daimin Wei, M.D., Ph.D.,^{b,c} Richard S. Legro, M.D.,^d Yuhua Shi, M.D., Ph.D.,^{b,c} Jing Li, M.S.,^{b,c} Lin Zhang, M.S.,^{b,c} Yan Hong, M.D., Ph.D.,^{e,f} Gang Sun, Ph.D.,^{e,f} Ting Zhang, M.D., Ph.D.,^{e,f} Weiping Li, M.D., Ph.D.,^{e,f} and Zi-Jiang Chen, M.D., Ph.D.^{b,c,e,f}

^a Center for Reproductive Medicine, Maternal and Child Health Hospital in Guangxi, Nanning, People's Republic of China;

^b Center for Reproductive Medicine, Shandong Provincial Hospital Affiliated to Shandong University, Jinan, People's Republic of China; ^c The Key Laboratory of Reproductive Endocrinology of Ministry of Education, and National Research Center for Assisted Reproductive Technology and Reproductive Genetics, Jinan, People's Republic of China;

^d Department of Obstetrics and Gynecology, Penn State College of Medicine, Hershey, Pennsylvania; ^e Center for Reproductive Medicine, Ren Ji Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai, People's Republic of China; and ^f Shanghai Key Laboratory of Assisted Reproduction and Reproductive Genetics, Shanghai, People's Republic of China

Objective: To evaluate the effect of frozen embryo transfer on maternal and neonatal complications of singleton and twin pregnancies compared with fresh embryo transfer in women with polycystic ovary syndrome (PCOS).

Design: A secondary analysis of a multicenter, randomized, controlled trial comparing live birth after frozen vs. fresh embryo transfer (FreFro-PCOS).

Setting: Reproductive medicine centers.

Patient(s): A total of 1,508 patients with a diagnosis of PCOS who were undergoing IVF were enrolled.

Intervention(s): On day of oocyte retrieval, eligible patients were randomized to the fresh or frozen embryo transfer groups. Up to two embryos were transferred in both groups. All pregnancies were followed up until delivery.

Main Outcome Measure(s): Gestational diabetes mellitus, pre-eclampsia, preterm birth, small for gestational age, and large for gestational age.

Result(s): The risks of gestational diabetes mellitus, preterm birth, and small for gestational age were comparable between the frozen and fresh embryo transfer groups in both singleton and twin births. However, singleton infants born after frozen embryo transfer were more likely to be large for gestational age (25.2% vs. 17.5%; relative risk 1.44, 95% confidence interval 1.01–2.07, $P=.044$) than those born after fresh embryo transfer. Twin pregnancy after frozen embryo transfer had a higher risk of pre-eclampsia (12.0% vs. 2.8%; relative risk 4.31, 95% confidence interval 1.27–14.58, $P=.009$) than those after fresh embryo transfer.

Conclusion(s): In women with PCOS, frozen embryo transfer resulted in an increased risk of large for gestational age in singleton pregnancy and a higher risk of pre-eclampsia in twin pregnancy.

Clinical Trial Registration Number: NCT01841528. (Fertil Steril® 2017; ■:■–■. ©2017 by American Society for Reproductive Medicine.)

Key Words: Frozen embryo transfer, large for gestational age, polycystic ovary syndrome, pre-eclampsia, preterm birth

Discuss: You can discuss this article with its authors and with other ASRM members at <https://www.fertstertdialog.com/users/16110-fertility-and-sterility/posts/21242-24804>

Received August 4, 2017; revised September 27, 2017; accepted October 12, 2017.

B.Z. has nothing to disclose. D.W. has nothing to disclose. R.S.L. has nothing to disclose. Y.S. has nothing to disclose. J.L. has nothing to disclose. L.Z. has nothing to disclose. Y.H. has nothing to disclose. G.S. has nothing to disclose. T.Z. has nothing to disclose. W.L. has nothing to disclose. Z.-J.C. has nothing to disclose.

Funding was provided by the National Basic Research Program of China (973 Program) (2012CB944700); the State Key Program of National Natural Science Foundation of China (81430029); the National Natural Science Foundation of China (81471428); and the Thousand Talents Program (R.S.L.).

B.Z. and D.W. should be considered similar in author order.

Reprint requests: Zi-Jiang Chen, M.D., Ph.D., Shandong University, Center for Reproductive Medicine, 324 Jingwu Road, Jinan 250021, People's Republic of China (E-mail: chenzijiang@hotmail.com).

Fertility and Sterility® Vol. ■, No. ■, ■ 2017 0015-0282/\$36.00

Copyright ©2017 American Society for Reproductive Medicine, Published by Elsevier Inc.

<https://doi.org/10.1016/j.fertnstert.2017.10.020>

In the last 4 decades IVF has fundamentally changed infertility treatment and has been increasingly used worldwide. Multiple pregnancy is one of the main complications of IVF and a major contributor to poor pregnancy outcomes (1). Although the incidence of high-order multiples has decreased with the reduced number of embryos transferred, the proportion of twin pregnancies is still a public concern (2). Compared with singleton pregnancy, twin pregnancy is associated with considerably higher risks of obstetric complications (3, 4). Nonetheless, when compared with natural conceptions, the risks of obstetric complications are much higher in singleton pregnancy after IVF than in natural singleton pregnancies (5, 6). However, such a difference in twin pregnancy resulting from IVF vs. natural conception was less marked than in singleton pregnancy (6, 7). The type of IVF procedure, for example fresh embryo transfer, may additionally affect perinatal outcomes when compared with frozen embryo transfer (8), though the effects of frozen embryo transfer on twin pregnancy outcomes are less well known.

The supraphysiologic hormone milieu following ovarian stimulation has been considered as a contributor to the adverse pregnancy outcomes after IVF (9), which may alter endometrial development and interfere with embryo implanting (10). Theoretically frozen embryo transfer provides a more physiologic environment for embryo implantation by avoiding placing embryos immediately after ovarian stimulation. There are numerous observational studies that compared obstetric outcomes in singleton pregnancies after frozen vs. fresh embryo transfer, with inconsistent results (8, 11, 12). For example, a lower risk of preterm birth after frozen embryo transfer than fresh embryo transfer was reported by some studies (8) but not by others (11, 12). However, observational studies have inherent potential confounders due to lack of randomization.

We recently completed a multicenter randomized trial in 1,508 patients with polycystic ovary syndrome (PCOS) (FreFro-PCOS) (13, 14). The primary results showed a higher risk of pre-eclampsia and similar risks of other obstetric complications after frozen vs. fresh embryo transfer (14). However, the proportion of twin births was more than 30% (14). We examined the effects of frozen vs. fresh embryo transfer on obstetric complications in singleton and in twin pregnancies separately.

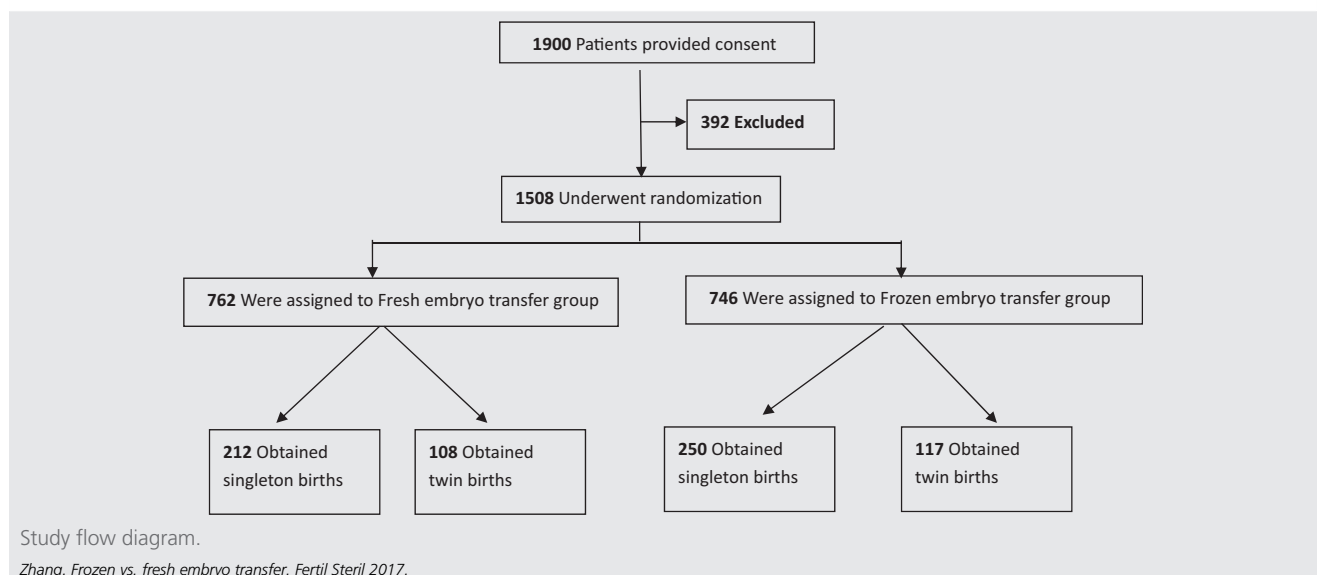
MATERIALS AND METHODS

Study Population

The FreFro-PCOS study was conducted during June 2013 and July 2015 in 14 centers all over China. The original study was approved by the ethics committees of all study sites and was registered at clinicaltrials.gov (registry number NCT01841528). The design and main outcomes of this trial have been previously reported in detail (13–15). Briefly, patients with PCOS who were undergoing their first cycle of IVF with or without intracytoplasmic sperm injection were enrolled. Polycystic ovary syndrome was diagnosed by the presence of menstrual disturbance combined with either hyperandrogenism or polycystic ovary on ultrasonography, and exclusion of other causes of hyperandrogenism and ovulation dysfunction. Patients were excluded if they had a history of unilateral oophorectomy, recurrent spontaneous abortion (defined as three or more previous spontaneous pregnancy losses), congenital or acquired uterine malformations, abnormal parental karyotypes, or medical conditions that contraindicated assisted reproductive technology and/or pregnancy.

In this study 462 patients who had singleton live birth and 225 patients who had twin live birth were included in the analyses (Fig. 1). Live birth was defined as delivery of any neonate at ≥ 28 weeks' gestation with signs of life.

FIGURE 1



Download English Version:

<https://daneshyari.com/en/article/8779804>

Download Persian Version:

<https://daneshyari.com/article/8779804>

[Daneshyari.com](https://daneshyari.com)