

## A New Dawn to Improve the Quality of Maternity in China Facing the Population Gap

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### Commentary

Many women using *in vitro* fertilization was in dilemma when choosing the transplantation of frozen or fresh embryos. Many of them are afraid that the frozen procedure of embryo cells will cause some uncertainty in their pregnant courses. In this year, researchers found that women using frozen embryos is safe enough compared with those using fresh-embryos. The confidential evidence showed that there were no statistical differences in the live birth rate, rates of implantation, clinical pregnancy, overall pregnancy loss, and ongoing pregnancy between these two methods. From the point of stem/progenitor cell fate and their microenvironment, it is reasonable to elucidate the potential advantages and some adverse responses of embryo cells.

In the present article on transfer of fresh versus frozen embryos in ovulatory women [1] Chen et al. presents the advantages of frozen-embryo transfer among ovulatory women with infertility in this multicenter, randomized trials (n=2157). The most fascinating dedication lies in the rectification of fresh embryo preference via *in vitro* fertilization (IVF), among the most significant science advancements in the 20st century. Women with infertility possess more extensive time window and a lower risk of the ovarian hyperstimulation syndrome (OHS). There might be some small flaws that deserve further consideration.

First, the favorable effect of frozen-embryo transfer for OHS was not elucidated. As a population of universal stem cells, the cleavage-stage embryo cells exposed to an artificial environment different from that of innate uterine and ovary. The cellular stress occurs owing to various culture factors and responsive maternal neuroendocrine immune molecules. Stressful stem cells are controlled by a global change of protein synthesis and altered translational programmes [2]. Once the stress (cold shock, cryopreservation) level exceeds cell tolerance, cells further return to a stem cell-like status for fostering the induction or development of somatic embryos [3]. The compatibility between an embryo and uterine may be improved after frozen procedure. The stressful embryo stem cells is considerably restrained as a result of low risk of OHS, coincident with her previous report that frozen-embryo transfer improved the rate of live birth for women with polycystic ovary syndrome [4]. Second, the timing of embryo transfer for 104 (5.00%) women was at day 5. But most of embryos step into the blastula rather than cleavage stage at day 5-7. How did the authors confirm their procedure isn't applicable to cycles with blastocyst transfer? Third, owing to the family planning policy in China between July, 1971 and December, 2015, most of the IVF women eager to a secondary baby are above 35, people

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anticipate the transfer of frozen embryo remains keeping such advantage for these outside the optimal child-bearing period. Especially, the incidence of abnormal karyotype, excluded in this trial, may increase with advanced maternal age. The karyotyping is in great need in the blastula stage. The recommendation of frozen-embryo transfer undoubtedly opens a prospective window for those with infertility not included for age restriction. Additionally, the differences of diet, physical exercises and health care after transfer between the two groups are unknown, which might affect the birth outcome as miscellaneous factors.

### Acknowledgments

It is also historic to commemorate the 20-year IVF experience as well as the first healthy baby born with 3.02 kg of weight and 50

cm of length, confirmed by umbilical cord blood detection, with the aid of third-generation IVF following whole genome screening

in the Reproductive Medicine Center, Southwest Hospital, Third Military Medical University, Chongqing, China.

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