

“Study of Comparison between Fresh Embryo Transfer in Ivf Verses Frozen Embryo Transfer In Previous Attempted Ivf Failure Patient in Vidarbha Region”

Akash Mohan More¹, Dr. Brijraj Singh², Dr. Ujwal Gajbe³

¹Clinical Embryologist, A.V.B.R.H., Jawaharlal Nehru Medical College, Sawangi, Meghe, Wardha 442004

²Associate Professor, Department of Anatomy, Jawaharlal Nehru Medical College, Sawangi, Meghe, Wardha 442004

³Professor, Department of Anatomy, Jawaharlal Nehru Medical College, Sawangi, Meghe, Wardha 442004

Corresponding Author: Dr. Brijraj Singh

Abstract

Introduction: Recent many study shows frozen embryo transfer is the preferable choice of procedures in the treatment of infertile couples in the Assisted Reproductive Technology. Frozen embryo transfer shows higher pregnancy rate in comparison with the fresh-embryo transfer (that means to avoid transferring embryo in ovarian stimulation cycle) among an ovulatory women undergoing IVF treatment.

Material and Methods: In this observational study, we assigned 24 women, who failed to conceive in their first cycle with fresh embryo transfer and undergoing their second cycle. Ovarian stimulation of patient is to be done at Wardha Test Tube Baby Centre, followed by vitrification on day 3, thaw and embryo transfer in next cycle.

Results: The pregnancy rates differ significantly between the frozen-embryo transfer and the fresh-embryo transfer. 10 patients i.e. 41.66% conceived pregnancy among 24 who failed to conceive with fresh cycle. Frozen-embryo transfer also resulted in a significantly lower risk of the ovarian hyper-stimulation syndrome than fresh embryo transfer. The risks of obstetrical and neonatal complications and other adverse outcomes did not differ significantly between the two groups.

Conclusions: It can be concluded that the endometrial preparation cycle might be helpful to achieve a better embryo-endometrial synchronicity that is seen in frozen embryo transfer patients undergoing IVF treatment and give better outcome in comparison with fresh embryo transferred.

Keywords: frozen embryo transfer, fresh-embryo transfer, IVF, embryo-endometrial synchronicity

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I. Introduction

Recent study shows frozen embryo transfer (FET) is one of the important procedures in treatment of infertile couples. FET is a viable alternative to fresh embryo transfer, studies show that the endometrium is not properly prepared for implantation. So that frozen embryo transfer pregnancy rates are increased and perinatal outcomes are better than fresh embryo transfer. Elective frozen embryo transfer has shown higher rate than a fresh embryo transfer among the women having poor ovarian reserve or polycystic ovarian syndrome, cancer patient undergoing treatment, patients who have premature ovarian failure.^{1,2,3} The studies in foreign countries, women wanted to have children at more advanced age so frozen embryo transfer useful for those purposes also. There is still some controversy regarding the implantation rates of fresh verses frozen embryo transfer, so in my study, I compared it with the endometrial thickness after the 14th day of embryo transfer for the betterment of infertile couples.

II. Aims and objectives:

- To study the comparison between fresh embryo transfer verses frozen embryo transfer
- To study outcome of pregnancy in fresh embryo transfer verses frozen embryo transfer

Inclusion Criteria

- Couples suffering from primary and secondary infertility having history of previous cycle fresh embryo transfer failure which is defined for the purpose of the study as those patients who had undergone treatment with IVF and failed to conceive after first cycle fresh embryo transfer.

Exclusion Criteria

- Patients not giving consent for IVF.
- Patients having uterine agensis.
- Patients not fit for IVF having viral infections like HIV, HBsAG etc.
- Patients who want to undergo fresh embryo transfer.

III. Methodology

This study is done in Wardha test tube baby centre, AVBRH, Sawangi, (Meghe), and Wardha. Relevant data on the demographics and treatment history as well as the indications for IVF treatment will be recorded. All participants will be stimulated using a short antagonist protocol. The routine protocol in our set up is as follows: Ovarian stimulation with recombinant follicle-stimulating hormone (FSH) or purified urinary human menopausal gonadotrophin (hMG) along with baseline sonography on day 2 after menstruation is over. The dose of gonadotrophin will be individualized according to the patient’s age and previous stimulation history or response to stimulation. Cycles will be monitored by transvaginal ultrasonography and Serum Estradiol, FSH, LH and Progesterone levels. Follicular maturation was completed by the administration of 10,000 IU hCG injection or injection leuprolide 0.2mg, at least two to three follicles will be reached a diameter of >17 mm. Patients who have good response to stimulation protocol and fulfil the criteria, we select at least five good quality oocyte and being available for the frozen embryo transfer. Good quality embryos are defined as four cells on Day 2 or 8 or more cells on Day 3 after ICSI. Grade 1–2 embryos defined as 0–20% of fragmentation. After embryo-transfer luteal support will be carried out by using 100 mg/day of progesterone injection. Positive pregnancy is defined as a β -hCG level>100mIU/mL on 14th day following embryo-transfer and clinical pregnancy will be identified by the appearance of a gestational sac approximately 4 weeks after embryo implantation.

IV. Observation:

Table 1: Age wise distribution of infertile patients

Age Group (years)	Frozen Embryo Transfer n=24	Positive Patients
26-30	05 (21%)	02
31-35	12 (50%)	05
36-40	05 (21%)	01
>40	02 (8%)	02
Total	24	10

The average age of female undergoing IVF is 32.36±5.554 years. Maximum females 50% were in the age group of 31-35 years.

Graph 1: Age wise distribution of infertile patients

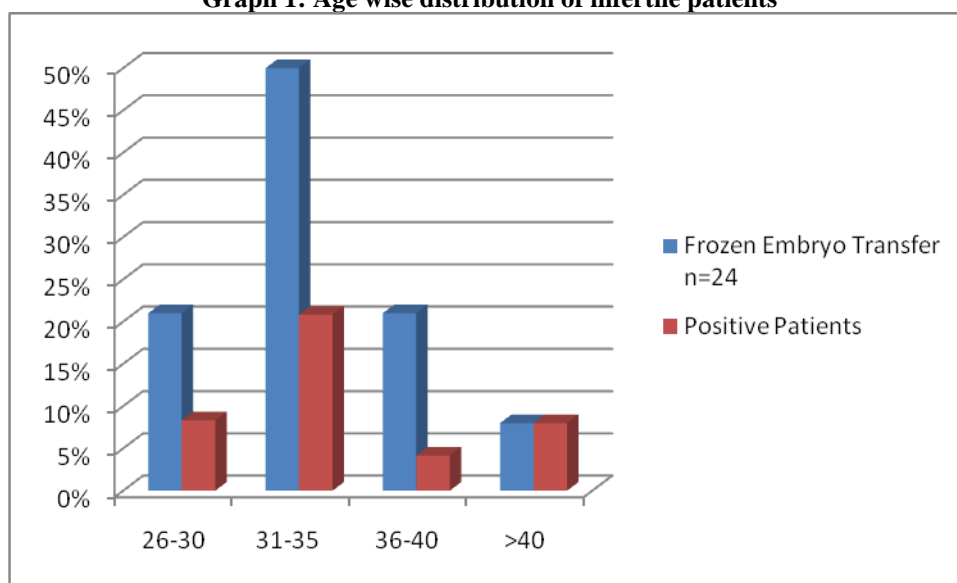
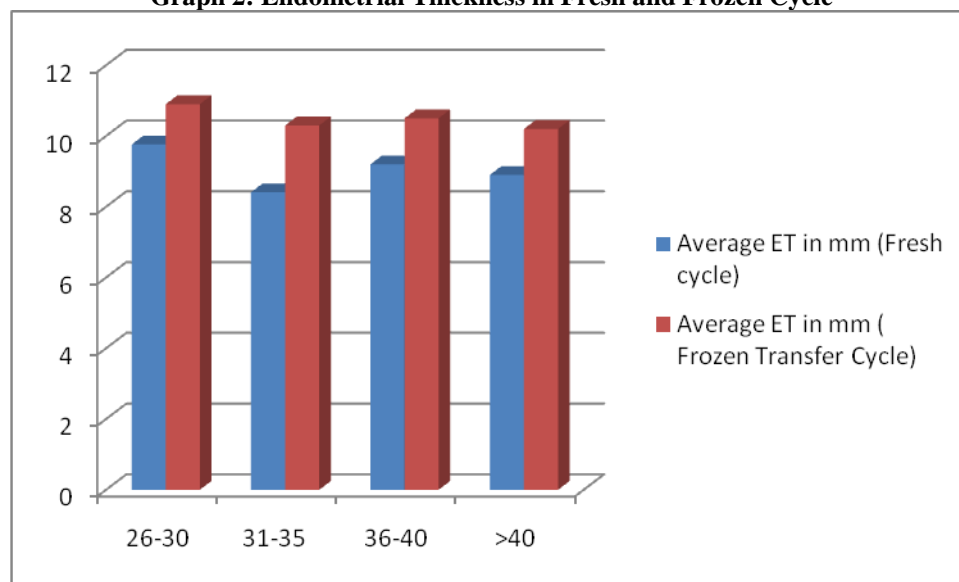


Table 2: Endometrial Thickness in Fresh and Frozen Cycle

Age group	Average ET in mm (Fresh cycle)	Average ET in mm (Frozen Transfer Cycle)
26-30	9.76	10.9
31-35	8.41	10.3
36-40	9.2	10.5
>40	8.9	10.2

Graph 2: Endometrial Thickness in Fresh and Frozen Cycle



V. Observation and Result

The pregnancy rates differ significantly between the frozen-embryo transfer and the fresh-embryo transfer. 10 patients i.e. 41.66% conceived pregnancy among 24 who failed to conceive with fresh cycle. [Table 1 and Graph 1] The study also shows that the endometrium is properly prepared for implantation in case of frozen-embryo transfer. [Table 2 and Graph 2] Frozen-embryo transfer also resulted in a significantly lower risk of the ovarian hyper-stimulation syndrome than fresh embryo transfer. The risks of obstetrical and neonatal complications and other adverse outcomes did not differ significantly between the two groups.

VI. Discussion

Study reveals that first observed human embryos cryopreservation successfully done in 1983 by Trounson and Mohr, that had been done using slow-cooled technique with the help of dimethyl sulphoxide (DMSO).⁴ Then after Verification technique came in picture for cryopreservation of mammalian embryos by Rall and Fahy in 1985, and after that successful attempt for human cleavage-stage embryo and then followed by a successful delivery in 1990.^{5,6} Recently, a newer strategy came into picture called “freeze-all” emerged in clinical treatment, literature reveals the further improvement in the outcomes of IVF.⁷

Zahra Basirat , Hajar Adib Rad. et al reveals that there was no significant difference in fertility success rate between the fresh and the frozen transfer groups in their study.⁸ One more cohort study shows that The average number of embryos transferred per cycle in the fresh ET group was 2.56 ± 0.496 and in frozen ET group was 2.5 ± 0.534 , and there was no significant difference between the two groups ($p < 0.05$). The results showed that there were no statistically significant differences in the biochemical, clinical, ongoing clinical pregnancy rates and miscarriage rates between comparable fresh and frozen embryo transfer groups.⁹

Palep Singh et al. in his study shows that use of frozen embryo transfer compared with fresh embryo transfer gives better outcome.¹⁰ Another study Matheus Roque et al reveals in his systematic review literature that the use of frozen embryo transfer, compared with fresh embryo transfer, significantly improved clinical and ongoing pregnancy rates, in patients submitted to ART.¹¹ Tarik Kassem Saidah et al. , observed in a meta-analysis of seven studies including 13,059 pregnancies showed a 2.31% rate in frozen embryos and 1.48% using fresh embryos.¹² Similar results seen with the current study in comparison of fresh vs frozen embryo transfers. The prolongation with the help of vitrification concludes more survival and better possible outcome seen after thawing.

VII. Conclusion

It can be concluded that the endometrial preparation cycle might be helpful to achieve a better embryo-endometrium synchronicity that is seen in frozen embryo transfer patients undergoing IVF treatment and give better outcome in comparison with fresh embryo transferred.

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