

Clinical outcomes in IVF (in-vitro fertilization) cycles with fresh and frozen-thawed embryo transfer



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Objective: The aim of this study was to compare clinical pregnancy and early miscarriage rates following fresh embryo transfer (ET) and frozen embryo transfer (FET) among different age groups.

Design: Retrospective study

Materials and methods: A total of 4832 non-donor ICSI (intracytoplasmic sperm injection) cycles with single ET (SET) from January 2007 to October 2014 were reviewed. Patients aged between 20 and 47 years underwent controlled ovarian hyperstimulation with gonadotropins, using GnRH antagonist for pituitary suppression. Oocyte maturation was achieved with either hCG or GnRH agonist. SET of day 5 blastocyst or day 5-6 vitrified-warmed blastocyst (Kuwayama's protocol) was performed. Blastocysts were selected for transfer or vitrification on the basis of the following criteria: at least moderate expansion and AA,AB,BA,BB grades according to Gardner's system. Progesterone was initiated on the day of retrieval in fresh autologous cycles, and five days prior to warming and transfer in FET cycles. FET performed in natural cycles were included in the study. All cases were divided into 3 age groups: (20-34); (35-39); (40-47). The following clinical outcomes were compared: clinical pregnancy (presence of a gestational sac(s)) rate per ET and early miscarriage rate (a fetal loss before the 12th week) per clinical pregnancy. Data was analyzed using Student's t-test.

Results: Frozen ET cycles yielded higher clinical pregnancy rates compared with fresh ET cycles regardless of maternal age. However, ongoing pregnancy rates per ET were similar following fresh ET and FET for all age groups. Present study also showed a significant increase in early miscarriage rate in frozen ET cycles compared with that in fresh in women <35.

Clinical pregnancy rates (PR) per ET in age group <35 years (2799 patients) for cryo and fresh cycle were 39.4% and 32.9%, respectively ($p < 0.001$). Miscarriage rates (MsR) per clinical pregnancy were 32.3% and 20.9%, respectively ($p < 0.01$). So progressive pregnancy rates (PrPR) per clinical pregnancy were (pregnancy that continued after 12 weeks) had no statistical difference between the two groups (67.7% and 79.1%, $p > 0.05$) (FIG.1).

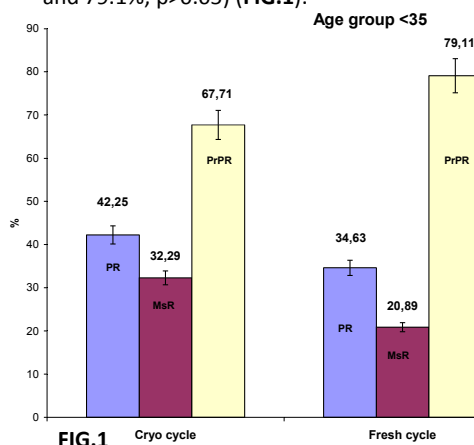


FIG.1

Clinical pregnancy rates (PR) per ET in age group 35 – 39 years (1363 patients) for cryo and fresh cycle were 32.3% and 27.9%, respectively ($p < 0.004$). Miscarriage rates (MsR) per clinical pregnancy were 41% and 40%, respectively ($p > 0.05$). Progressive pregnancy rates (PrPR) per clinical pregnancy were for cryo and fresh cycle had no statistical difference between the two groups (58.9% and 60%, $p > 0.05$) (FIG.2).

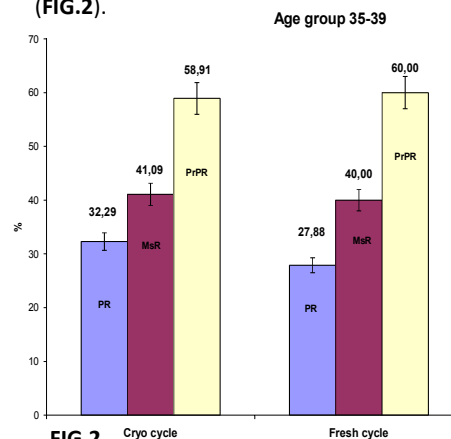


FIG.2

Clinical pregnancy rates (PR) per ET in age group >39 years (670 patients) for cryo and fresh cycle were 20.3% and 15.8%, respectively ($p < 0.01$). Miscarriage rates (MsR) per clinical pregnancy were 57.4% and 63.2%, respectively ($p > 0.05$). Progressive pregnancy rates (PrPR) per clinical pregnancy were had no statistical difference between the two groups (42.6% and 36.8%, $p > 0.05$) (FIG.3).

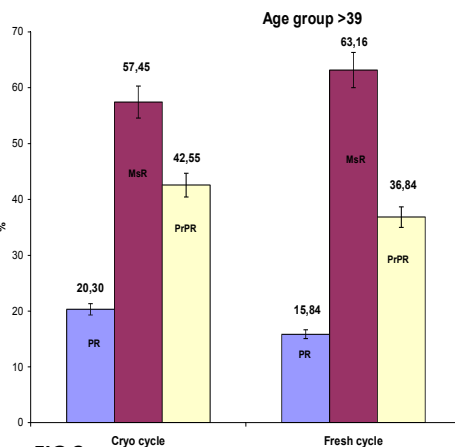


FIG.3

Conclusion:

Despite higher clinical pregnancy rate, women <35 undergoing FET are at increased risk of early pregnancy loss compared with those undergoing fresh ET. Collected data shows that in the absence of medical contraindication fresh ET results in better outcome for women of this age group. No difference in ongoing pregnancy rates following fresh ET and FET among women aged 35-39 allows the physician to choose between either fresh or FET according to the patient's needs. A very low ongoing pregnancy rate in women ≥40 suggests that donor oocytes cycles should be highly recommended for this age group.

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