Outcome after fresh versus frozen embryo transfer in ICSI Technique

A thesis submitted for partial fulfillment of Master Degree

IN OBSTETRICS AND GYNECOLOGY

By

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سورة البقرة الآية: ٣٢

Acknowledgement

First of all, thanks are due to ***God***, the most merciful & beneficient.

I would like to express my deepest gratitude to my dear **Prof. Dr. Mohammed Nabegh El-Mahallawi** *Professor of Obstetrics and Gynecology, Faculty of Medicine – Ain Shams University* for his sincere support & fruitful guidance.

My profound thanks to **Dr. Mohammed Mahmoud Alsherbeeny** *Assistant Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University* for his valuable advices & encouragement throughout this work.

Many thanks & many respect to **Dr. Tarek Aly Rafaat** *Assistant professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University for his honest assistance, meticulous suggestions and continuous help.*

Special Thanks to **Dr. Azza Awad Abd el razik** Embryology lab. Director for her support and efforts .

Shahenda Saad El-deen Mohammed Hassona

Dedication...

to my dear parents,

my dear brother,

my dear sisters.

Finally yet importantly , this work and my whole career are indebted to the never ending love and

support of my beloved husband and my sweet sons

Aser & Basel

Contents

List of Abbreviations

ICSI	Intra-cytoplasmic sperm injection
IVF	Invitro – fertilization
ET	Embryo transfer
ART	Assisted Reproductive techniques
COS	Controlled Ovarian Stimulation
eSET	Elective single embryo transfer
FET	Frozen embryo transfer
AIDS	Acquired immune deficiency syndrome
PZD	Partial zona dissection
SUZI	Subzonal injection
GnRH	Gonadotrophin releasing hormone
GnRHa	Gonadotrophin releasing hormone agonist
HCG	Human Chorionic Gonadotrophin
LH	Leutinizing Hormone
PCOS	Polycystic Ovary Syndrome
OHSS	Ovarian hyperstimulation Syndrome
FSH	Follicle stimulating hormone
PVP	Poly vinyl pyrrolidone

NPB	Nuclear precursor bodies
E2	Estradiol hormone
P	Progesterone hormone
RCT	Randomized clinical trial
UC	Uterine contractions
VEGF	Vascular endothelial growth factor
VP	Vascular permeability
BMI	Body mass index
TSH	Thyroid stimulating hormone
CBC	Complete blood count
RBS	Random blood sugar
HMG	Human menopausal gonadotrophin
AFC	Antral follicle count
B-HCG	B subunit of human chorionic gonadotrophin
CRP	Clinical pregnancy rate
MR	Miscarriage rate
COH	Controlled ovarian hyperstimulation
LBR	Live birth rate

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Introduction

Traditionally , women who undergo IVF had a fresh embryo transfer, If there is a surplus of embryos left after embryo transfer ,then those could be frozen, this allowed the women a chance to use the frozen embryos for a second pregnancy or also a second attempt at the first pregnancy if she was unsuccessful with the fresh embryo transfer(1) .

Implantation represents one of the important steps for the success of assisted reproduction techniques (ART)(2). Its effectiveness relies on three main parameters: embryo quality, endometrial receptivity (ER), and a well-balanced embryoendometrium interaction (3). The implantation window is a self-limited period in which the endometrium has acquired the adequate morphologic and functional state for the embryo attachment.

The endometrial receptivity is an essential step for conception in natural and infertility treatment cycles (4 -6) therefore suboptimal synchrony between endometrium and the transferred embryos can be responsible for many IVF cycle failures , this is another indication for embryo cryopreservation and frozen embryo transfer.

World wide freezing and thawing of embryos has been increasingly used since the first infant was born as a result of this technique in 1984(7,8), since then cryopreservation techniques have developed considerably and many parameters of the processes have undergone extensive research to improve success(9,10) .

The use of frozen embryo replacement currently even exceeds the number of fresh cycles performed in some countries.

The impact of cryopreservation on the implantation potential of early cleavage stage embryos has to be assessed by analyzing the clinical pregnancy out come from thawed embryos in relation to the fresh ones.

There is a controversy which has better results fresh or frozen embryo transfer and there are scarce studies nationally about this technique.

ICSI (intracytoplasmic sperm injection) is the IVF technique in which a single sperm is injected directly into an egg.

This procedure is most commonly used to overcome male infertility problems although it may also be used where eggs cannot easily be penetrated by sperm.

The first gamete micromanipulation techniques date back to the late 50s, IN Rome in 1990 there was the first birth by injection of the sperm into the perivitelline space, the technique was developed in1991 at the Vrije universiteit Brussel.

The first American baby was conceived with the technique in Atlanta,Georgia in 1992.the first large experience with the technique in the United States was published in 1995(11).

Aim of the work

To assess and compare the clinical pregnancy rate (success rate)after fresh and frozen embryo transfer in women undergo ICSI.

Research question

Is frozen embryo transfer in women undergoing ICSI technique associated with higher pregnancy rate than fresh embryo transfer?

Research hypothesis

frozen embryo transfer in women undergoing ICSI technique is associated with higher pregnancy rate than fresh embryo transfer**.**