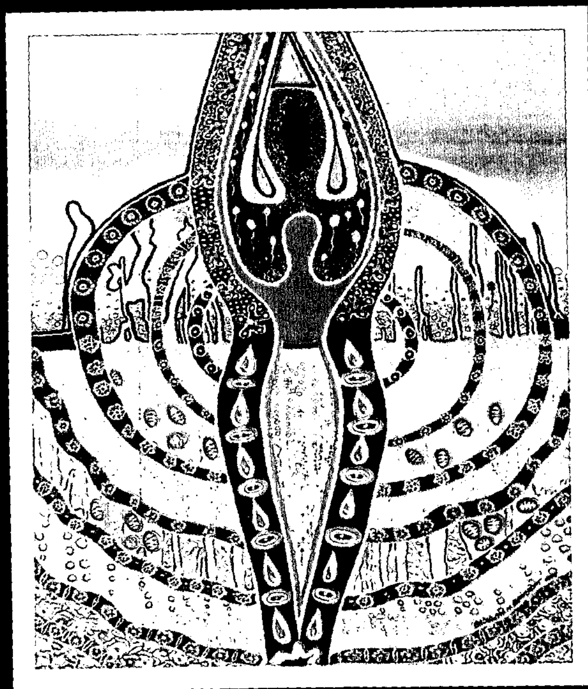
REPRINTED FROM:

11th World Congress on IN VITRO FERTILIZATION HUMAN REPRODUCTION GENETICS

Sydney (Australia), May 9-14, 1999



MONDUZZI EDITORE

INTERNATIONAL PROCEEDINGS DIVISION

11th World Congress on
In Vitro Fertilization & Human Reproductive Genetics
© Monduzzi, Bologna, Italy 1999

An Oocyte Recipient Program May Be Successful Even if the Source of Oocyte is Infertile Women

H. Kaplan, Jk. Choe, Jh. Check, F. Fox and S. Perkins

The University of Medicine and Dentistry of New Jersey
Robert Wood Johnson Medical School at Camden
Cooper Hospital/University Medical Center, Department of Obstetrics and Gynecology Division of Reproductive Endocrinology & Infertility, Camden, NJ, USA

Summary

This study presented the results of a series of in vitro fertilization-embryo transfer (IVF-ET) cycles in which the oocytes were donated to infertile couples by other infertile couples concurrently seeking treatment. Oocytes were donated to the couples in exchange for financial assistance for the couple's own IVF treatment. Recipients were classified by ovarian function: 20 were in complete ovarian failure (menopausal); 54 still had spontaneous menstruation. All oocyte recipients were treated with oral micronized estradiol and progesterone replacement therapy. For those recipients in complete ovarian failure, the viable pregnancy rates and implantation rates were 50.0% and 21.8%, respectively. In the other group, the rates were 68.2% and 34.7%, respectively. These data demonstrate that infertile women can be a very good source of oocytes that are capable of fertilization and implantation at very good rates.

Introduction

In 1993 we published what we believe the first publication related to a shared oocyte system in which a woman going through in vitro fertilization (IVF) herself donates half of the collected oocytes to an anonymous recipient who, in turn, shares the expenses of the donor (1). Actually, at the Cooper Center for IVF the recipient pays the entire cost of the IVF cycle

(approximately $2700.00) and the medication used for controlled ovarian hyperstimulation is also provided by the recipient. The donor is financially responsible for sonographic and hormonal monitoring (if not covered by insurance) and extra procedures, e.g., intracytoplasmic sperm injection or embryo cryopreservation. The pregnancy rate (PR) for this early study was only 20.5%.

In a subsequent study the PR per transfer was similar for recipients with ovarian function (20.4%) but the PR per transfer for those without ovarian function was 46.3% (2). This corroborated previous conclusions by Edwards et al (3) and Yaron et al (4). These authors attributed the better PR to an improved uterine environment related to a prolonged absence of ovarian function (3,4).

The aforementioned study found a 20% pregnancy with frozen ET in recipients with ovarian function and 22.2% in recipients with ovarian failure (2). Thus the frozen rate for recipients with ovarian failure was only half of the rate with fresh ET. The series included a total of 29 cycles for frozen ET.

There have been many improvements in the IVF procedures since these publications so that many centers, including our own, have significantly improved the PRs following IVF-ET. The study presented here evaluated PRs in recipients following fresh ET to see if the PRs similarly improved for this group also. The study would also determine if the same trends as before still exists, i.e., higher PRs in recipients without ovarian function and higher PRs on fresh ET cycles compared to frozen ET.

Materials and Methods

A retrospective review of all donor oocyte recipient cycles performed between 1/1/97 and 8/31/98 at the Cooper Institute for IVF was conducted. The method of stimulation and hormonal replacement therapy for donors and recipients has been already described (2).

The outcome measures reported included fertilization rates, number of embryos transferred, viable PRs (viable fetus at end of first trimester) and implantation rates. The outcome of frozen ETs were also reported.

Results

Recipients ranged in age from 40-53 years old with a median of 45.2 years in the menopausal group and 44.5 years in the group with some ovarian function. Donors were at most 38 years old. The median number of oocytes donated to the recipients was 10.5 and 12, respectively by group. The results of the IVF-ET cycles are summarized in Table 1.

The viable PRs were 50.0% and 68.2%, respectively. Implantation rates were 21.8% and 34.7%.

Table 1 - Outcome of donor oocyte cycles by stimulation used by recipient

	HRT only (n=20)	Down Regulation with HRT (n=54)
Age*	(40-53) 45.5	(40-54) 44.5
No. of oocytes received* Fertilization rate*	(3-22) 10.5 (0-100) 68.5	(3-25) 12 (0-100) 62.0
No. of transfers deferred Poor lining Poor synchronization Poor fertilization	6 2 2 2	10 3 6 1
No. Transfers Embryos transferred*	14 (3-6) 4	44 (2-6) 3
Pregnancy rates Implantation rates	50.0% (7/14) 21.8% (12/55)	68.2% (30/44) 34.7% (52/150)
All frozen ET cycles Pregnancy rates Implantation rates	4 0% 0%	13 30.8% (4/13) 13.7% (7/51)

*Data presented as (range) median

Conclusions

The results show that new improvements in IVF technology (improved culture medias, change in transfer technique, embryo pre-selection, assisted embryo hatching, salpingectomy for hydrosalpinx) have resulted in improvement in PRs and implantation rates for recipients.

The new data no longer shows any trend for higher PRs in recipients without ovarian function. Implantation rates have also considerably improved from the previous studies (1,2) following frozen ET even with the disadvantage of embryo pre-selection where the better embryos are transferred on the retrieval cycle.

These pregnancy and implantation results seem comparable to most programs using paid donors where the donors are usually younger and may give all the oocytes. Advantages of the shared anonymous program are that it helps a woman needing IVF, but not able to afford it, to go through this procedure and hopefully conceive, it saves the recipient payment to the donor and other third parties involved, it provides a ready source of oocytes from a highly motivated group. The shared oocyte program attracts a good number of donor volunteers without any coaxing.

References

1. CHECK JH, ASKARI HA, CHOE J, BAKER A, ADELSON HG. The effect of the age of the recipients on pregnancy rates following donor-oocyte replacement. J Assist Reprod Genet 10:137-40, 1993.
2. CHECK JH, O'SHAUGHNESSY A, LURIE D, FISHER C, ADELSON HG. Evaluation of the mechanism for higher pregnancy rates in donor oocyte recipients by comparison of fresh with frozen embryo transfer pregnancy rates in a shared oocyte programme. Hum Reprod 10:3022-7, 1995.
3. EDWARDS RG, MORCOS S, MACNAMEE M, BALMACEDA JP, WALTERS DE, ASCH R. High fecundity of amenorrhoeic women in embryo-transfer programmes. Lancet 338:292-4, 1991.
4. YARON Y, BOTCHAN A, AMIT A, KOGOSOWSKI A, YOVEL I, LESSING JB. Endometrial receptivity: the age-related decline in pregnancy rates and the effect of ovarian function. Fertil Steril 60:314-8, 1993.

MONDUZZI EDITORE

Via Ferrarese, 119/2 – 40128 Bologna, Italy Tel ++ 39-051 4151123 – Fax ++ 39-051 4151125