

# Improved implantation and live delivered pregnancy rates following transfer of embryos derived from donor oocytes by single injection of leuprolide in mid-luteal phase

**J.H. Check<sup>1,2</sup>, C. Wilson<sup>2</sup>, K. Levine<sup>2</sup>, R. Cohen<sup>3</sup>, D. Corley<sup>1,2</sup>**

<sup>1</sup> Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology,  
Division of Reproductive Endocrinology & Infertility, Camden, NJ

<sup>2</sup> Cooper Institute for Reproductive Hormonal Disorders, P.C. Marlton, NJ

<sup>3</sup> Philadelphia College of Osteopathic Medicine, Department of Obstetrics and Gynecology, Philadelphia, PA (USA)

## Summary

**Purpose:** To determine if the use of a single injection of one-mg leuprolide acetate in mid-luteal phase can increase pregnancy rates in donor oocyte recipients. **Materials and Methods:** Prospective study where couples were made aware of a study using the gonadotropin releasing hormone agonist (GnRHa) triptorelin that in the mid-luteal phase found improved pregnancy rates following embryo transfer in donor oocyte recipients. They were given the option of a single one-mg injection of the GnRHa leuprolide acetate. Pregnancy outcome was compared according to whether leuprolide was given or not. Also compared were the average first serum beta-hCG level in those who conceived according to taking leuprolide or not. **Results:** Chi-square analysis showed a significantly higher clinical and live delivered pregnancy rate (63.9% and 52.8%) in those supplementing with leuprolide than those who did not (39.5% and 32.9%). Similarly implantation rates were significantly higher (44.2% vs. 25.2%). The average first serum beta-hCG level for those conceiving and taking leuprolide was 294 mIU/mL vs. 325 mIU/mL for those who did not. **Conclusions:** Similar to triptorelin the mid-luteal injection of leuprolide acetate improves pregnancy outcome in donor oocyte recipients.

**Key words:** Donor oocyte recipients; Luteal phase; Leuprolide acetate; Embryo implantation.

## Introduction

Recipients receiving donor oocytes have in general the highest pregnancy rates per cycle. Some studies in women having IVF-ET with their own oocytes have been found to have improved pregnancy rates following injection of gonadotropin releasing hormone agonist (GnRHa), e.g. triptorelin or buserelin [1, 2]. However at least in younger women aged  $\leq 35$ , no significant differences were found using the GnRH agonist leuprolide acetate (although there was a slightly positive trend for improved outcome) [3].

With such high implantation rates with donor oocytes one might expect not to find much of an improvement with luteal phase GnRH agonists. However, improved pregnancy rates were claimed by Tesarik *et al.* using triptorelin in a donor oocyte model [4].

## Materials and Methods

A prospective study with patient option of adding leuprolide acetate one mg three days after embryo transfer or not. They were advised of the generally good pregnancy outcome with donor oocytes without the use of GnRHa supplementation. However they were advised of the study by Tesarik *et al.* showing

higher pregnancy rates with injection of a GnRHa in a donor oocyte model [4].

The average first serum beta-hCG levels were compared in those conceiving with and without the extra injection of leuprolide acetate. All recipients were on a graduated estradiol regimen with subsequent vaginal and intramuscular progesterone.

## Results

There were 36 women choosing to use leuprolide acetate and 76 who did or not. Chi-square analysis showed a significant difference in both clinical ( $p = 0.027$ ) and live delivered ( $p = 0.009$ ) pregnancy rates.

The implantation rates for those taking leuprolide were 44.2% vs. 25.2% ( $p = 0.001$ ). The average first serum beta-hCG level for those conceiving in this study was 294 mIU/mL for those taking the GnRHa vs. 325 mIU/mL for those not taking leuprolide.

## Discussion

These data confirm the conclusions by Tesarik *et al.* that a single injection of GnRHa three days after embryo transfer improves the live delivered pregnancy rate and im-

Table 1. — *The effect of mid-luteal phase injection of leuprolide acetate on pregnancy rates in oocyte recipients.*

Leuprolide acetate one mg given	No. transfers	No. clinical pregnancies (%)	No. live delivered pregnancies (%)
Yes	36	23 (63.9%)	19 (52.8%)
No	76	30 (39.5%)	25 (32.9%)

plantation rates in donor oocyte recipients [4]. Tesarik *et al.* found the GnRHa triptorelin to be effective and this study found that same benefit with leuprolide acetate [4].

### Conclusions

Similar to the present findings with leuprolide with IVF-ET cycles and in contrast to the study by Tesarik *et al.* [4], there was no increase in the first serum beta-hCG level in those taking vs. not taking luteal phase leuprolide [1, 3].

### References

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Address reprint requests to:  
J.H. CHECK, M.D., Ph.D.  
7447 Old York Road  
Melrose Park, PA 19027 (USA)  
e-mail: laurie@ccivf.com