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REDUCING THE hCG TRIGGER DOSE IN STIMULATED IVF CYCLES FROM 10000IU TO 5000IU IMPROVES PREGNANCY RATE.

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ABSTRACT

Introduction: The objective of this prospective observational study was to evaluate whether there was any effect on the number of oocytes collected and cycle outcome when the triggering dose of hCG is reduced. This study was developed based on the current movement towards less aggressive use of stimulation and medication in ART and on our own experience with controlled natural cycle IVF where only 5000IU hCG is used.

Methods: Patients undergoing stimulated IVF cycles between January and April 2009 received a reduced dose of hCG for follicular maturation of 5000IU. These data were collected in a prospective observational manner and compared to historical controls of 434 previous IVF cycles performed consecutively prior to the test period. During the control period all patients received 10000IU hCG.

Results: Whilst there was no statistical difference in the number of oocytes collected between the two groups (12.2 vs. 8.7) The pregnancy rate per oocyte collection was significantly improved in the test group. (55% vs. 47%, $p < 0.05$)

Conclusions: Our data demonstrates that there is no difference in the number of oocytes retrieved at oocyte pickup by reducing the administered dose of hCG however there is a statistically significant increase in the pregnancy rate when patients received the lower dose of hCG.

OBJECTIVE

The aim of this study was to evaluate if there was any difference in outcome measures when the hCG trigger dose was reduced from 10000IU to 5000IU.

METHODS

A prospective observational study was carried out to assess the impact, if any, of changing the hCG trigger dose in IVF cycles.

Ninety-nine IVF cycles were prospectively given 5000IU of hCG and the data was compared to historical controls from 434 cycles during the preceding time period who received 10000IU. No attempt was made in either group to select 'best' patients or exclude any cycles.

Ovarian stimulation was carried out according to standard protocols and included patients assigned to Long GnRH agonist protocol, Short GnRH agonist, and GnRH antagonist stimulation protocols. Follicular development was assessed by serial ultrasound and the patient was triggered when three follicles of 18mm or more were present. Oocyte collection took place 36 hours after hCG trigger. Only viable oocytes collected were included in the data analysis.

STATISTICS

Statistical analysis was performed using Fishers Exact test, considering significance when P is less than 0.05.

RESULTS

When ninety-nine cycles with 5000IU hCG as the trigger were compared with 434 cycles where 10000IU hCG was used there was no significant difference in the number of viable oocytes collected in each group. However, the pregnancy rate per oocyte collection performed was improved in the 5000IU hCG group and this difference was statistically significant. See Table.

| | 5000IU | 10000IU | P-value* |
|--------------------------------------|-------------|------------|----------|
| n | 99 | 434 | |
| Av. Number oocytes collected (range) | 12.2 (1-30) | 8.7 (1-20) | NS |
| Pregnancy rate / oocyte collection | 55% | 47% | P = 0.08 |

DISCUSSION

In this comparative study, the data obtained demonstrates that reducing the hCG trigger dose from 10000IU to 5000IU does not impact on the number of viable oocytes.

However, the pregnancy rate calculated per oocyte collection improved from 47% with 10000IU to 55% with 5000IU. This difference is statistically significant. ($p = 0.08$)

Recent direction in ovarian stimulation for IVF has been towards milder protocols and application of gonadotropins. It was in this vein of thought that we wanted to assess the impact reducing of the dose of hCG. The effects of gonadotropins on the implantation environment are not well understood, and there is contradictory evidence in the literature

A recent study looking at endometrial preparation in egg donation recipients demonstrated that the use of hCG in the preparation resulted in significantly lower pregnancy and implantation rates.¹

Furthermore other recent studies looking at gene expression of human endometrial receptivity showed poorer expression in stimulated cycles than in natural cycles further confirming the role of gonadotropins in affecting the endometrial environment.²

Our own experience in controlled natural cycle IVF where only 5000IU hCG has always been the protocol and implantation rates are high helps to confirm the potential benefit of reduced hCG trigger doses.³

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