The effect of cetrorelix vs ganirelix on pregnancy outcome using minimal gonadotropin stimulation in women with elevated day 3 serum follicle stimulating hormone levels

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Summary

Purpose: To determine if the choice of gonadotropin releasing hormone antagonist influences subsequent pregnancy rates in women with diminished egg reserve. *Method:* Retrospective determination of pregnancy rates following embryo transfer in women with day 3 FSH > 12 mIU/ml using lower dose gonadotropin stimulation regimen. *Results:* Though no significant differences were found there was a trend for lower pregnancy rates with ganirelix vs cetrorelix. *Conclusions:* The trend for lower pregnancy rates with ganirelix vs cetrorelix seen in women with diminished egg reserve is consistent with the findings of a study performed in women with normal egg reserve using a normal gonadotropin stimulation regimen. It is not clear if the adverse effect is on the endometrium or the embryo.

Key words: Decreased egg reserve; Ganirelix; Cetrorelix; IVF-ET.

Introduction

Despite elevated day 3 serum follicle stimulating hormones (FSH), pregnancies following in vitro fertilization-embryo transfer (IVF-ET) have still been recorded following the administration of minimal gonadotropins to prepare for oocyte retrieval [1, 2].

To prevent premature luetinizing hormone (LH) surge, a gonadotropin releasing hormone (GnRH) antagonist can be used.

The current study was conducted to evaluate pregnancy rates following IVF-ET in women with decrease ovarian egg reserve based upon which GnRH antagonist was given.

Materials and Methods

A retrospective cohort analysis was performed on all women undergoing minimal gonadotropin stimulation where day 3 serum FSH was ≥ 12 mIU/ml. Women were categorized according to three age groups ≤ 39, 40-42, ≥ 43. The women were further stratified according to type of GnRH antagonist used.

Both cetrorelix and ganirelix dosages were started at 250 mcg daily with a follicle of 14 mm average diameter as long as the serum estradiol (E2) remained > 135 pg/ml.

The clinical pregnancy rate, as determined by an ultrasound at eight weeks, the ongoing/delivered pregnancy rate (defined as viable past 12 weeks), and the implantation rates were all evaluated. Those women having completely natural cycles were excluded from the study.

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Results

Pregnancy rate (PR) and implantation rate according to age and type of GnRH antagonist are shown in Table 1.

An apparent trend for at least a 20% lower PR when using ganirelix as compared to cetrorelix is seen with women with a decreased ovarian reserve. This is consistent with previous findings in women having a normal ovarian egg reserve [3].

Both the clinical and the ongoing/delivered PRs were significantly higher in women aged ≤ 39 compared to women 40-42 years of age. Despite 68 transfers, no live pregnancies were seen in women aged 43 or older with elevated day 3 serum FSH.

Discussion

These data concerning use of GnRH antagonists in women with elevated day 3 FSH having IVF-ET confirm previous conclusions that advanced reproductive age is a much greater determinant for poor pregnancy rates than elevated day 3 serum FSH levels [4, 5].

It is not clear why there should be a trend for lower pregnancy and implantation rates with ganirelix vs cetorelix. Since the differences were not significant it is possible that there is no difference in outcome with the use of ganirelix vs cetrorelix. However, since these data were consistent with a previous study in women with normal egg reserve also showing a trend for lower pregnancy rates with ganirelix vs cetrorelix the possibility exists that for some reason the use of ganirelix does lead to lower pregnancy rates. Thus since this group of woman

Table 1. — *Clinical and live delivered pregnancy and implantation rates according to age and type of gonadotropin releasing hormone agonists*.

		Antagonist		
Age group		Ganirelix	Cetrorelix	*p* value
≤ 39	% transfers with 1 ET	46.1%(24/52)	56.7% (55/97)	.219
	Clinical PR/transfer	28.8% (15/52)	37.1% (36/97)	.311
	Live/delivered pregnancy rate/transfer	26.9% (14/52)	34.0% (33/97)	.374
	Implantation rate	21.2% (21/99)	24.0% (40/167)	.607
40-42	% transfers with 1 ET	50.0% (17/34)	50% (26/52)	1.0
	Clinical PR/transfer	11.8% (4/34)	17.3% (9/52)	.482
	Live/delivered pregnancy rate/transfer	8.8% (3/34)	9.6% (5/52)	.902
	Implantation rate	6.5% (4/62)	12.6% (12/95)	.211
≥ 43	% transfers with 1 ET	73.7%(14/19)	77.5%(38/49)	NS
	Clinical PR/transfer	0%	2.0% (1/49)	
	Live/delivered pregnancy rate/transfer	0%		
	Implantation rate	0%	0%	

PR = pregnancy rate.

with diminished egg reserve are already at a disadvantage when undergoing IVF-ET, until it can be determined if ganirelix compared to cetrorelix does lower pregnancy rates, it is probably safter to use cetrorelix as the GnRH antagonist.

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