

LH supplementation given for low LH levels during antagonist IVF cycles significantly improves clinical pregnancy rates

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Introduction

Antagonist IVF cycles are favoured by most patients and are increasingly used first line, although studies comparing success rates with long downregulation cycles have not consistently shown equivalence. LH levels are often significantly suppressed by the antagonist, and it was hypothesised that LH supplementation targeted to such cycles would improve outcome.

Methods

This retrospective study assessed the empirical use of LH supplementation with either recombinant LH (Luveris) or urinary LH (Pregnyl). Groups of patients undergoing antagonist IVF cycles were derived from 2 clinicians working in the same location over the same time period and using the same laboratory. Cycle monitoring through IVFAustralia involved routine blood testing for LH (with oestradiol and progesterone) as well as ultrasound scans to determine optimal time for egg collection. One clinician (GS) gave LH supplementation whenever LH levels <1 , while the other (GH) did not.

Results

Between February 2010 and December 2011, 3 groups of women undergoing antagonist cycles were identified: (1) Cycles in which LH >1 (n=51), (2) LH <1 with no supplement given (n=75) and (3) LH <1 in which LH supplementation was given (n=54; 35 Luveris 75iu daily for 1-9 days). There were no significant differences in age, FSH starting dose, days of stimulation, number of eggs collected, number of embryos transferred, number of embryos frozen, or endometrial thickness. Women given LH supplementation had significantly higher peak oestradiol levels. Clinical pregnancy rates per cycle completed (fetal heart activity detected) were (1) 45.1%, (2) 29.3% and (3) 46.3%. Women who had adequate or supplemented LH levels during antagonist IVF cycles (48/106) had a significantly better clinical pregnancy rate than those who's LH levels were low and were not given supplementation (22/75) ($p < 0.05$, Fisher's exact test).

Conclusion

This study indicates a possible role for LH supplementation in antagonist cycles in which LH levels are very low. Our monitoring indicates this occurs in as many as 50% of antagonist cycles. A prospective randomised trial is urgently needed.