

Comparison of Progesterone protocol versus gonadotropin-releasing hormone antagonist protocol in terms of preventing premature LH surge and assisted reproductive technology outcome in infertile women: a randomized controlled trial

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Abstract

Introduction: Progesterone can be used instead of GnRH agonists and antagonists in order to avert a premature LH surge during controlled ovarian stimulation (COS) protocol. Nonetheless, there is limited knowledge regarding its utilization. Thus, this study compared

the effects of progesterone and GnRH antagonists (GnRH-ant) on premature LH surges and assisted reproductive technology (ART) results in infertile women undergoing ART.

Materials and Methods: In this clinical trial, the progesterone protocol (study group) and GnRH-ant protocol (control group) were tested in 300 infertile individuals undergoing IVF/ICSI. The main outcome was the number of oocytes retrieved. The secondary outcomes included premature LH rise/surge, the quantity of follicles measuring ≥ 10 and 14 mm, oocyte maturity and fertilization rate, the number of viable embryos, high quality embryo rate and pregnancy outcomes.

Results:

The study group exhibited a statistically significant increase in the number of retrieved oocytes, follicles measuring 14 mm or greater, and viable embryos compared to the control group ($P < 0.05$). The study group also increased oocyte maturity, chemical pregnancy rate, and clinical pregnancy rate ($P < 0.05$). Both groups had similar mean serum LH, progesterone, and E2 levels on trigger day. The control group had more premature LH rise than the study group, although this difference was not statistically significant.

Conclusion: In conclusion, it can be stated that the progesterone protocol and the GnRH-ant protocol exhibit similar rates of sudden premature LH surge in infertile patients. However, it is important to note that the two regimens differ in their outcomes in ART.

Trial registration: This study was retrospectively registered in the Iranian website (www.irct.ir) for clinical trials registration (<http://www.irct.ir>: IRCT-ID: IRCT20201029049183N, 2020-11-27).

Keywords: Progesterone, GnRH antagonists, ART, LH surge