

P-656 Examination of the clinical significance of the two-step ovulation induction method (DuoStim)

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Study question: Do culture results of eggs obtained by double stimulation (DuoStim), where eggs are collected twice in one cycle, differ from a conventional fertility drug method?

Summary answer: The culture results of eggs acquired via the DuoStim cycle versus those acquired via a widely used conventional fertility drug method did not differ significantly.

What is known already: For patients with reduced ovarian reserve, the random start method, in which ovarian stimulation can start at any time during the menstrual cycle, is being used. As the pituitary gland is suppressed by progesterone during the luteal phase, endogenous luteinizing hormone surges are less likely to occur and ovulation is more easily avoidable. Previous reports showed that ovarian stimulation during the follicular and luteal phases of the same menstrual cycle resulted in similar blastocyst formation rates with normal chromosome numbers, which seems to be time-consuming. The DuoStim method is considered useful in cases in which time is at a premium.

Study design, size, duration: Between June 2019–December 2020, 562 egg collection cycles were performed in women ≥ 36 years. Ovulation cycles were evaluated in the conventional ovulation induction cycle (Co) group and DuoStim cycle (DS) group (subclassified into D1 group [first egg collection in cycle] and D2 group [second egg collection]). Post-insemination culture results were evaluated.

Participants/materials, setting, methods: Participants were women ≥ 36 years. Infusion method was IVF, and blastocysts of Gardner classification 3BB or higher were designated as good blastocysts, and blastocysts of 3AA or higher were designated as the best blastocysts. Confirmation of the fetal sac was defined as clinical pregnancy for the single freeze-thaw blastocyst transplant cycle. Chi-square and t-tests were used for statistical analysis. $P \leq 0.05$ indicated statistical significance.

Main results and the role of chance: The average number of eggs acquired per cycle was 6.9 in the Co group and 3.5 in the DS group, and the egg maturation rate was 88.0% in the Co group and 95.7% in the DS group, which showed significant differences. The 2PN rate, blastocyst arrival rate, and Day 5 good blastocyst arrival rate in the obtained mature eggs were 66.5%, 66.5%, and 38.3% in the Co group and 70.9%, 70.5%, and 34.4% in the DS group and were not significantly different. Similarly, when a comparative study was conducted between the D1 group and D2 group, rates were 67.5%, 69.0%, and 31.0% in the D1 group and 74.4%, 71.9%, and 37.5% in the D2 group, with no significant difference noted. Rates of clinical pregnancy and post-transplantation miscarriage were 41.1% and 17.8% in the Co group and 16.6% and 0% in the DS group, respectively, with no significant difference, although rates in the Co group tended to be better.

Limitations, reasons for caution: The fertilization method was evaluated only by IVF. The transplantation method was freeze-thaw embryo transfer by hormone replacement cycle, and the target age was 36 years or older.

Wider implications of the findings: DuoStim, which increases the number of acquired eggs, is useful when eggs must be collected as soon as possible. Regarding the clinical pregnancy rate after transplantation, better results were obtained for eggs acquired by the conventional fertility method, but it was necessary to repeat the number of attempts.

Trial registration number: not applicable