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**PROLONGING FOLLICULAR STIMULATION TO OPTIMIZE OOCYTE YIELD DOES NOT  
COMPROMISE IMPLANTATION POTENTIAL OF SCREENED EMBRYOS**

Jenna Friedenthal, MD<sup>1</sup>, Sydney Chang, MD<sup>1</sup>, Dmitry Gounko, MA<sup>2</sup>, Joseph A. Lee, BA<sup>2</sup>,  
Alan B Copperman, MD<sup>1</sup> and Tanmoy Mukherjee, MD<sup>1</sup>

1. Obstetrics, Gynecology and Reproductive Science, Icahn School of Medicine at Mount Sinai, Klingenstein Pavilion 1176 Fifth Avenue 9th Floor New York, New York, United States, 10029.
2. Reproductive Medicine Associates of New York, 635 Madison Ave 10th Floor New York, New York, United States, 10022

**OBJECTIVE:**

The number of oocytes retrieved following stimulation is an independent predictor of in vitro fertilization (IVF) cycle outcome. During fresh IVF cycles, oocyte maturation trigger (OMT) must be carefully timed in order to simultaneously optimize oocyte development and endometrial receptivity, which is based on the timing of luteinization. However, with the increased utilization of freeze-all cycles, reproductive endocrinologists have shifted the focus of stimulation to maximizing oocyte yield. The potential benefits of this strategy must be weighed against potential negative impacts, including hyperstimulation syndrome and impaired oocyte quality. Prior work has shown that delayed administration of OMT does not negatively impact the oocyte maturation rate, fertilization rate, and euploid rate[1]. Studies to date have not yet evaluated associated clinical pregnancy outcomes. Our goal was to determine whether delayed OMT is associated with IVF outcomes following single thawed euploid embryo transfer (euploid SET).

**DESIGN:**

Retrospective cohort study

**MATERIALS AND METHODS:**

The study included patients who underwent euploid SET in GnRH-antagonist IVF cycles from 2016 to 2019. IVF cycles were divided into two groups: (1) administration of OMT in the presence of at least 2 follicles 18mm in diameter, and (2) delayed OMT despite the presence of



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at least 2 18mm follicles. Preimplantation genetic testing for aneuploidy (PGT-A) was performed using next generation sequencing (NGS). Primary outcome was implantation rate (IR). Secondary outcomes included ongoing pregnancy/live birth rate (OP/LBR) and clinical loss rate (CLR). Cycles involving transfer of >1 screened embryo or unscreened embryos were excluded. Statistical analysis was performed using T-tests, Wilcoxon two-sample T-test (non-parametric), and a logistic regression analysis with a generalized estimation equation to control for confounders with  $p < 0.05$  considered significant.

## RESULTS:

2,701 euploid SETs were performed during the study period. Among these, 2,132 were from cycles in which OMT was administered in the presence of  $\geq 2$  mature follicles, and 569 were from cycles in which OMT was delayed despite the presence  $\geq 2$  mature follicles. Univariate analysis demonstrated differences in patient age and peak estradiol. In an unadjusted analysis, there was a significant difference in IR between patients who were triggered when 2 mature follicles were visualized vs delayed OMT (61.12% vs 66.26%,  $P=0.02$ ). However, after adjusting for confounders, there were no significant differences in IR (OR 0.72, 95% CI 0.48-1.08), OP/LBR (OR 0.75, 95% CI 0.51-1.10), or CLR (OR 0.80, 95% CI 0.38-1.71).

## CONCLUSIONS:

In the largest study to date evaluating the impact of delayed OMT during controlled ovarian stimulation cycles, our results demonstrated no association between delay in OMT and IR, OP/LBR, or CLR. Patients can be reassured that prolonging stimulation to optimize oocyte yield does not negatively impact cycle outcome. Prospective studies are needed to more definitively understand the optimal timing of trigger administration.

## REFERENCES:

1. Chang, S., et al., *Does extending controlled ovarian hyperstimulation during a GnRH antagonist protocol in vitro fertilization cycle affect oocyte quality?* Fertility and Sterility, 2019. **112**(3): p. e217.