

Ideal Number of Days of Ovarian Stimulation Based on Anti-Mullerian Hormone Level: Can the Live Birth Rate Be Improved?

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Abstract

OBJECTIVE: To determine if the relationship between the anti-Mullerian hormone (AMH) level and in vitro fertilization (IVF) stimulation cycle length predicts success of a live birth with a fresh autologous embryo transfer.

DESIGN: A retrospective descriptive study of patients diagnosed with infertility at the University of Cincinnati (UC) Health, Center for Reproductive Health from January 2012 to December 2019 was performed. Autologous IVF cycles with fresh embryo transfers were included. Patients with an AMH reported as zero ng/ml were excluded from the study. Patients with a live birth were compared to patients who did not experience a live birth in relation to their AMH level and stimulation cycle length.

MATERIALS & METHODS: De-identified data was queried through the Society for Assisted Reproductive Technology Clinical Outcomes Reporting System (SART CORS). The outcomes examined were live birth and number of oocytes retrieved. The analysis included T-test, Shapiro-Wilk, and Mann-Whitney U tests using Program R. A value of $p < 0.05$ was assumed to be significant.

RESULTS: A total of 460 IVF stimulation cycles were included. No clear relationship was observed between AMH, number of days of ovarian stimulation, and live birth rate. However, an increased AMH (4.51 ng/ml versus 2.92; $p < 0.001$), lower age (32.6 years versus 34.2; $p < 0.001$), larger number of oocytes retrieved (16.5 oocytes versus 12.9; $p < 0.0001$), and lower FSH dosage (1342 IU versus 1745; $p = 0.0205$) were associated with a higher birth rate.

CONCLUSION: There is not an ideal duration of stimulation, based on AMH level, that is associated with an improved chance of a live birth with a fresh autologous embryo transfer. Therefore, adjusting the stimulation cycle length to obtain appropriate oocyte growth should not have a detrimental effect on live birth rate in women with a high AMH.

SUPPORT: None.