Gonadotropin Dose in Young IVF Population with Low Anti-Mullerian Hormone Level: A SART Data Study

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Abstract

INTRODUCTION: Most common cause for female infertility is diminished ovarian reserve (DOR). AMH plays a key role in determining ovarian reserve, with level <1.05 ng/mL associated with DOR. Young IVF population even with DOR have modest clinical outcome, however information on the stimulation regimen is limited. The aim of this study was to investigate Gonadotropin dose required in young IVF patients with low AMH to achieve optimal clinical response.

METHODS: This is a retrospective cohort study based on SART database between 2012-2016. The study population included 23,001 fresh autologous IVF cycles in women <35 years old with AMH level <1.05 ng/mL. Based on AMH level, women were stratified into 3 groups: low (<1.05-0.4 ng/mL), very low (<0.4-0.16 ng/mL) and ultralow (<0.16 ng/mL). Student t test was used to compare continuous variables and chi-square test to compare pregnancy groups.

RESULTS: Mean population age was 32.4 ± 2.4 and BMI 25 ± 5.9. Women with ultralow AMH had lowest number of oocytes retrieved (5.2 ± 0.4), followed by very low (6.1 ± 0.1) and low AMH (9.4 ± 0.07), p<0.001. The total gonadotropin dose required was significantly lesser in the low AMH group (4086 ± 13.9IU) than very low (4446.5 ± 28.3IU) and ultralow (4319.34 ± 66.6IU), AMH group (p<0.00). Median days of stimulation was 12 in all cycles. Live birth rate was significantly higher in the low AMH (4735/16290,19.1%), followed by very low (1131/5375,21%) and ultralow AMH (159/1336,11.9%).

CONCLUSION: AMH is an independent predictor of live birth. It can be used as a guide to estimate Gonadotropin dosage in young IVF population with DOR.