

## Inclusion of Human Growth Hormone in IVF Stimulation Cycles Reduces Total Gonadotropin Usage and Cycle Cost

Srinidhi Reddy, MD<sup>1</sup> ; Kathryn M. Goldrick, MD<sup>1</sup> ; Randal D. Robinson, MD<sup>1</sup>

1. University of Texas Health San Antonio, San Antonio, Texas

### Abstract

**OBJECTIVE:** The use of human growth hormone (HGH) treatment in ovarian stimulation (OS) for IVF may increase the number of oocytes retrieved and decrease the total dose of gonadotropins needed during OS. However, neither a cost effectiveness analysis nor a paired comparison between OS cycles with and without HGH in the same patient have been performed. The objectives of this study were to investigate if the inclusion of HGH as an adjuvant in OS reduces the total gonadotropin usage, is more cost effective, and impacts oocyte and blastocyst yield.

**MATERIALS & METHODS:** This IRB-approved study identified patients who used HGH in their OS at an academic fertility practice between January 2020 and October 2021 after a previous OS without the inclusion of HGH. A retrospective chart review was performed and paired t-tests using GraphPad Prism (v 8.0) were used for statistical analysis with  $p < 0.05$  considered significant.

**RESULTS:** A total of 20 patients who had paired OS cycles with and without HGH were included in this study. Study participants had an average age of 36.3 years, BMI of 25.3, and AMH of 1.58. Total gonadotropin dose, length of stimulation, and total cost of stimulation were lower for OS with HGH but were not statistically significant. The number of oocytes retrieved, number of 2PNs, and number of blastocysts were higher for OS with HGH but were not significantly different (Table 1).

	OS without HGH (n=20)	OS with HGH (n=20)	P-value
Total Gonadotropin Dose	3990 (1759.3)	3793 (1554.6)	0.71
Length of Stimulation	12.1 (2.9)	11.8 (2.1)	0.71
Cost of Stimulation	\$1330 (609.3)	\$1312 (540.4)	0.88
Number of Oocytes Retrieved	8 (6.3)	19 (7.8)	0.38
Number of 2PNs	5.0 (4.2)	6.8 (5.7)	0.28
Number of Blastocysts	2.5 (1.8)	3.6 (3.1)	0.16

(Table 1) Cycle characteristics and outcomes.  
Shown as mean (SD)

**CONCLUSION:** Our study is the first to compare OS cycles with and without HGH in the same patient. This study found that when HGH is used, the total dose of gonadotropin and length of stimulation are decreased. Even with the additional cost of HGH, the overall cycle cost is lower for the cycles that included HGH compared to those that did not. However, these results did not demonstrate statistical significance; and a larger sample size is required to rule out a Type II error. This pilot study described important trends that require further study.

**SUPPORT:** None