

Gonadotropin boost at the time of ovulation trigger does not affect oocyte production or maturation

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OBJECTIVE

To determine if, in patients with diminished ovarian reserve (DOR), an additional bolus of follicle-stimulating hormone (FSH) at the time of human chorionic gonadotropin (hCG) trigger (“gonadotropin boost”) improves oocyte production and maturation.

METHODS

- Retrospective cohort study, 2019-2020
- 102 autologous fresh IVF cycles reviewed from 83 patients identified as DOR
 - DOR defined as an anti-Mullerian hormone (AMH) level of <1ng/dL and a diagnosis of unexplained infertility
 - Patients with AMH >1 or who used an aromatase inhibitor during their stimulation phase were excluded
- Of the 102 cycles, 33 cycles were treated with a gonadotropin boost at time of hCG trigger
 - Mean gonadotropin boost was 327 ± 87.6 IU
- Patients’ age, body mass index (BMI), AMH, day 3 FSH, peak estradiol (E2) concentration, total gonadotropins utilized, days of stimulation, number of oocytes retrieved, number of metaphase II (M2) oocytes retrieved, number of germinal vesicles (GV), number of oocytes with 2 pronuclei (2PN), and maturation rate were recorded
 - Oocyte maturation rate = total number of M2 oocytes divided by number of oocytes retrieved

RESULTS

	No Boost (N=69)		Boost (N=33)		p-value
	Mean	+/- SD	Mean	+/- SD	
Age	38.1	3.6	38.1	4.5	0.99
BMI	26.3	5.1	26.4	4.9	0.95
FSH	9.2	3.3	10.2	3.5	0.14
AMH	0.65	0.24	0.60	0.28	0.35
Peak E2	1773	755	1346	638	0.01
Total Gonadotropins	5006	1819	5445	1417	0.23
# Days Stimulated	10.4	1.8	10.3	2.0	0.77
# Oocytes Retrieved	6.7	3.7	5.9	3.6	0.34
# 2PN	4.0	2.6	3.3	2.8	0.26
# M2	5.07	2.9	4.21	2.9	0.16
# M1	0.56	1.0	0.64	0.9	0.70
# GV	0.75	1.2	0.88	1.1	0.60
Maturation Rate	0.76	0.76	0.71	0.80	0.11

CONCLUSIONS

- Patients who received the gonadotropin boost had significantly lower peak estradiol levels and trended towards higher total gonadotropin dose.
- Gonadotropin boost at the time of ovulation trigger does not improve the number of oocytes retrieved or maturation in patients with DOR.

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