COMPARISON BETWEEN GNRH AGONIST VERSUS DUAL TRIGGER INJECTION IN FREEZE ALL CYCLES FOR HIGH RESPONDER CASES

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INTRODUCTION

Researchers tried different ovulatory triggers to replace HCG in high responders and PCOS patients as a trial to reduce the OHSS risk in such patients. In 1990 Gonen et al. proposed the use of the flare of the GnRH agonist trigger as a way to induce an endogenous LH and FSH surge mimicking normal physiology. At first studies found worse reproductive outcome due to defective luteal phase support cause by the short lived LH surge induced by the agonist trigger which failed to support early pregnancy.

Furthermore, the agonist trigger had a suboptimal response incidence around 5 %, this was specially observed in patients with low LH level at start of stimulation as patients with hypogonadotrophic hypogonadism and those who received combined oral contraceptives for a long period prior to stimulation. However, later studies proved that the GnRH agonist trigger alone or added to HCG has a positive effect on the embryological outcome of ICSI cycles. Similarly, multiple studies suggested positive effect of the dual trigger on oocyte and embryo quality.

Moreover, the dual trigger had a benefit in its ability to overcome the suboptimal response to the agonist trigger as well as possible benefit on the quality of oocytes and embryos.

The benefit of the dual trigger on the embryological and reproductive outcome in normal and poor responders in fresh cycles over hCG alone or agonist trigger alone was supported by many studies in recent literature.

However, little studies discussed the potential benefit in freeze all cycles especially high responder cases.

AIM OF THE WORK

The use of Gonadotrophin releasing hormone agonist (GnRHa), with freeze-all strategy followed by frozen embryo transfer (FET) has been found to eliminate the risk of ovarian hyper stimulation syndrome (OHSS) in high responder patients undergoing IVF or ICSI cycles. However, physicians still hesitate to use the GnRH agonist alone as a routine trigger for concerns of suboptimal response and compromised cycle outcome.

PATIENTS AND METHODS

Study design:

Prospective cohort study on 80 high responder patients undergoing ICSI cycle using antagonist protocol. Comparing group A: GnRH agonist trigger (n = 40) and group B: Dual trigger (n = 40), were followed up in FET cycles to assess the outcomes.

Patients:

The sample size was divided into two groups group A will receive GnRH agonist trigger and group B will receive dual trigger.

Patients included in this prospective study

include women less than 30 years old with an anti-mullerian hormone more than 4.5 ng/ml, antral follicle count more than 15 antral follicles, 20 to 30 oocytes at time of pick up and a peak estradiol level between 2500 to 4500. We excluded any women older than 30 years old, with an anti-mullerian hormone less than 4.5 ng/ml, antral follicle count less than 15, peak estradiol level above 4500 or below 2500 pg/ml, has an uterine congenital anomalies, has signs of endometriosis or history of ovarian hyperstimulation syndrome.

RESULTS

A significantly higher number of mature oocytes (17.75 ‡ 1.72 versus 19.50 ‡2.71, p value = 0.001) and blastocysts (3.03 ‡ 0.70 versus 3.45 + 0.81, p value = 0.022) were retrieved in the dual trigger group compared to the GnRH agonist trigger group.

No statistically significant difference was found regarding clinical pregnancy rate (52.5% in the agonist trigger group versus 57 % in the dual trigger group, p value = 0.625) or ovarian hyper stimulation syndrome risk between both triggers.

Table 1: Comparison between the two studied groups according to M2 oocytes

M2 oocytes	Group Agonist trigger (n = 40)	Group dual trigger (n = 40)	t	p
Min. – Max.	14.0 – 22.0	14.0 – 25.0	3.450*	0.001*
Mean ± SD.	17.75 ± 1.72	19.50 ± 2.71		
Median (IQR)	18.0 (17.0 – 19.0)	19.0 (18.0 – 22.0)		

There was a statistically significant difference between the studied groups according to number of M2 oocytes. Where the mean number of M2 oocytes retrieved in the dual trigger group 19.50 compared to 17.75 in the agonist group.

Table 2: Comparison between the two studied groups according to OHSS

OHSS	Group Agonist Trigger (n = 40)		Group dual Trigger (n = 40)		χ^2	p
	No.	%	No.	%		
None	38	95.0	33	82.5	3.194	^{MC}p= 0.178
Mild	2	5.0	5	12.5		
Moderate	0	0.0	2	5.0		
None	38	95.0	33	82.5	3.130	^{FE}p= 0.154
Mild+ Moderate	2	5.0	7	17.5		

There was no statistically significant difference between the two groups according to OHSS risk.

CONCLUSION

- Better embryological outcome was found following frozen embryo transfer of cycles triggered by the low dose dual trigger.
- However, no difference was found in clinical pregnancy rate. OHSS risk was the same whether GnRH agonist trigger or dual trigger was used.