TRIGGER DAY SERUM PROGESTERONE LEVEL VERSUS PROGESTERONE TO FOLLICLE RATIO REGARDING REPRODUCTIVE OUTCOME OF ANTAGONIST PROTOCOL

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INTRODUCTION

Progesterone levels in the serum on the day of HCG trigger are the simplest predictor of reproductive success, although they are not reliable. In the late follicular stage, serum P levels vary depending on the ovarian response since many follicles develop during the COS protocol with elevated estradiol levels.
Depending on the ovarian response, different studies define the threshold for high P levels differently, falling between 0.4 ng/ml to 3 ng/ml. Therefore, we could be better use another reproductive outcome predictive factor.
Progesterone to follicle ratio was employed in this study as a predictor of the outcome of the ICSI cycle. In this case, we used the follicle count (≥14 mm on the day of HCG) as a marker of available embryos and an indicative of the ovarian response. We also connected this figure to the level of serum progesterone, which indicates endometrial receptivity.

AIM OF THE WORK

The purpose of this research is to evaluate the progesterone to follicle ratio's predictive value for the reproductive outcome (clinical pregnancy) after fresh embryo transfer in female patients receiving ICSI cycles with GnRH antagonists at private IVF centers. And determining whether this ratio is a better way to predict clinical pregnancy rates than measuring isolated serum progesterone on the day that the oocytes finally mature, is the study's secondary goal.

PATIENTS AND METHODS

Three hundred patients having fresh embryo transfer following GnRH-antagonist ICSI cycles at private IVF centers in Alexandria will be part of this prospective cohort research.
Group A (150 cases): in this group, the reproductive outcome of the ICSI cycle will be predicted using serum progesterone.
Group B (150 cases): where the progesterone follicle ratio will be used as a predictor of the ICSI cycle's reproductive result
- In order to confirm clinical pregnancy, patients who met the inclusion/exclusion criteria will be monitored with ultrasound scans for up to seven weeks of pregnancy.

Inclusioncriteria:
1) Women in the 20-40 age range.
2) GnRH antagonist cycles.
3) Fresh transfer of one or two high quality blastocysts.
4) Normal responder.

Exclusioncriteria:
1) Hormonal impairment, including hyperprolactinemia, thyroid conditions, and FSH levels greater than 15 IU/L.
2) Transfer cycles of frozen-thawed embryos.
3) The existence of uterine disease, such as adenomyosis or abnormalities.
4) Repeated loss of pregnancy.
5) Prior implantation failure (at least three prior unsuccessful ETs).

RESULTS

Table 1: Relation between Clinical pregnancy and P4 (Progesterone) in group A

	Clinical pregnancy		U	P
	No (n = 88)	Yes (n = 62)		
P4 (Progesterone)				
Min. – Max.	0.12 – 1.50	0.21 – 1.47	2395.0	0.204
Mean ± SD.	0.89 ± 0.34	0.81 ± 0.31		
Median	0.92	0.80		

Table 2: Relation between Clinical pregnancy and Progesterone to follicle ratio in group B

	Clinical pregnancy		U	P
	No (n = 80)	Yes (n = 70)		
Progesterone to follicle ratio				
Min. – Max.	0.01 – 0.15	0.01 – 0.10	2399.50	0.131
Mean ± SD.	0.05 ± 0.03	0.05 ± 0.02		
Median	0.04	0.05		

Table 3: Relation between clinical pregnancy and different parameters

	Clinical pregnancy		U	P
	No (n = 168)	Yes (n = 132)		
P4 (Progesterone)				
Min. – Max.	0.12 – 1.50	0.21 – 1.50	10900.50	0.801
Mean ± SD.	0.85 ± 0.36	0.83 ± 0.32		
Median	0.85	0.82		
Progesterone to follicle ratio				
Min. – Max.	0.01 – 0.15	0.01 – 0.11	10850.0	0.750
Mean ± SD.	0.05 ± 0.03	0.05 ± 0.02		
Median	0.05	0.05		

$\chi 2$: Chi square test / p: p value for association between different categories /*: Statistically significant at $p \leq 0.05$ / PPV: Positive predictive value / NPV: Negative predictive value

Progesterone did not exhibit statistical significance in relation to clinical pregnancy in both groups (300 patients) with a p-value of.801. The mean progesterone levels were 0.83 ± 0.32 for patients with positive clinical pregnancy and 0.85 ± 0.36 for those with negative clinical pregnancy.
The mean progesterone to follicle ratio for patients with positive clinical pregnancy was 0.05 ± 0.02 and for patients with negative clinical pregnancy was 0.05 ± 0.03. In both groups (300 patients), the ratio did not show statistical significance with regard to clinical pregnancy (p=.750).

CONCLUSION

In new ICSI cycles, the progesterone to follicle ratio is not a better indicator of implantation and clinical pregnancy than serum progesterone.
The P/O ratio for predicting live birth over each variable separately does not show any discernible improvement based on this data.
On the day of the trigger, we might utilize the blood progesterone level as as a straight forward method of predicting ICSI outcome and choosing patients for delayed FET because the progesterone to follicle ratio has no useful effect in predicting ICSI outcome.