



Long Protocol versus Short Protocol in PCO

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Abstract: Aim: A Comparison between long agonist protocol and short agonist protocol in PCO. **Methods:** A retrospective study was done at El Galaa Teaching Hospital over a period of 10 years from January 2015 till May 2025. 200 cycles of ICSI performed for PCO females were divided into 2 groups: Group (A) 100 cases of PCO females received long protocol, And Group (B) 100 cases of PCO females received short protocol. Comparison between two groups was done according to number of days of stimulation, number of oocytes retrieved, number of M2 oocytes and pregnancy rate. Both groups were on same lowest starting dose 150 IU of HMG stimulation of same drug. **Results:** As regarding: Age was of statistically insignificant difference between both groups where mean of age of group A was 33.25 ± 1.3 year, And mean of age of group B was 33.55 ± 1.2 year, And P value was $>5\%$, So Age between both groups was statically insignificant as P value $> 5\%$ these because we take in our consideration that age of females in both groups should be between 30 35 years of both groups. BMI was in group A mean 33.1 ± 1.1 kg/m² and for group B mean BMI was 33.9 ± 0.9 Kg/m² where p was $> 5\%$ so BMI was statically insignificant. Mean of days of stimulation was Group A was 13.6 ± 1.5 days, while Mean of group B was 10.7 ± 1.6 days, where P value was $< 5\%$ so it is statistically significant between both groups as P value less than 5%. Number of oocytes retrieved was, Mean of group A was 10.35 ± 2.6 oocytes, while group B mean was 9.99 ± 3.3 oocytes, And P value was $> 5\%$, So Number of oocytes retrieved was statistically insignificant between both groups as P value was $> 5\%$. Number of M2 oocytes was, Mean of Group A was 7.19 ± 2.11 M2, and mean of Group B was 6.97 ± 2.29 M2, where P value was $> 5\%$, So Number M2 of oocytes retrieved was statistically insignificant between both groups as P value was $> 5\%$. Pregnancy rate was, Mean of group A was $26 \pm 0.44\%$, while group B mean was $23 \pm 0.42\%$, And P value was $> 5\%$, So pregnancy rate was statistically insignificant between both groups as P value was $> 5\%$. **Conclusion:** In PCO females short protocol was better than long protocol only in number of days of stimulation. But number of oocytes retrieved and number of M2 oocytes and pregnancy rate were statistically insignificant.

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Keywords: Long Protocol; Short Protocol; PCO

1. Introduction:

Polycystic ovarian syndrome (PCO) can be defined by ovarian dysfunction and hyperandrogenism (1).

In the reproductive age group of females; PCO is considered as the most common endocrinopathy in them (2)

About half of females with PCO are obese. (3)

There are lower clinical pregnancy rates in ICSI where there are PCOI and obesity. (4, 5)

In these patients there is high risk for miscarriage (4, 6, 7)

In those there is decrease in overall live birth rates (5,8)

In animal models of maternal diabetes there were abnormal oocytes, with delayed maturation, smaller size, high apoptosis in granulosa cells, bad embryo outcome, delayed embryo development, growth restriction, amniotic defects and abnormal pregnancy outcome (9-14).

PCO diagnosis done according to Rotterdam criteria, by 2 of; oligo or anovulation, clinical or biochemical signs of hyperandrogenism and picture of PCO ovary by ultrasound.(14).

Increased body mass index (BMI) made changes in preovulatory follicular fluid by increasing insulin, triglycerides (TG) and androgen. Which affect oocyte size. Metformin treatment for these females make their oocyte of normal size and function (15).

Long agonist protocol can be used ideally in female with PCO (16).

In Females with PCO when we use different types of protocols as long and short protocol in female with PCO, There were no statistically significant differences in clinical pregnancy rate, live birth rate (17).

Aim of study:

To compare long protocol versus short protocol in PCO females

2. Patient and methods:

This is retrospective study was done in El Galaa Teaching Hospital over 10 years from January 2015 till end of May of 2025.

In Which 200 PCO females underwent ICSI where divided into 2 groups:

Group A: 100 PCO female received long agonist protocol.

Group B: 100 PCO female received short protocol.

PCO diagnosis done according to Rotterdam criteria, by 2 of ;oligo or anovulation, clinical or biochemical signs of hyperandrogenism and picture of PCO ovary by ultrasound. (14).

Inclusion criteria:

- Age: 30:35 years
- BMI: 30:35
- Diagnosed as PCO

Exclusion criteria:

- Age <30 or >35
- BMI <30 or >35
- Any other medical disorders
- Any uterine anomalies

3. Results:

As regarding the mean of age between the both groups (Group A: 100 Females who were PCO and received long protocol. And Group B: 100 Females who were PCO and received Short protocol), where mean of age of group A was 33.25 ± 1.3 year, and mean of age of group B was 33.55 ± 1.2 year, And P value was $>5\%$, So Age between both groups was statically insignificant as P value $> 5\%$ these because we take in our consideration that age of females in both groups should be between 30:35 years of both groups (Figure, 1)

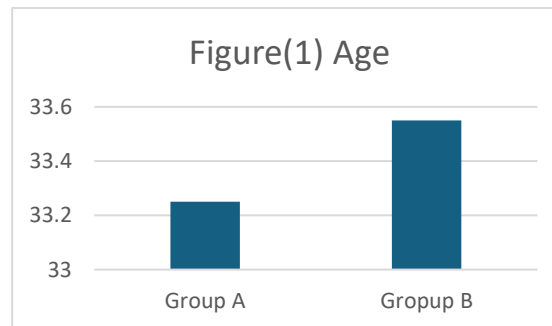


Figure (1): Age

As regarding BMI was in group A mean 33.1 ± 1.1 kg/m² and for group B mean BMI was 33.9 ± 0.9 Kg/m² where p was $> 5\%$ so BMI was statically insignificant (Figure 2)

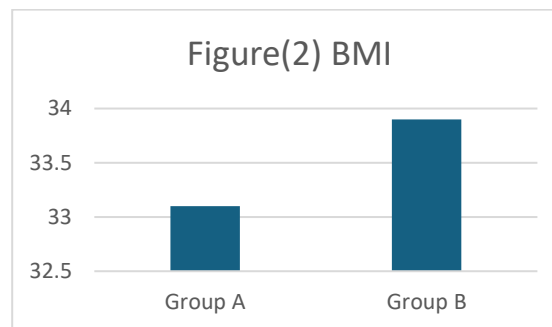


Figure (2): BMI

As Regarding mean of days of stimulation was Group A was 13.6 ± 1.5 days, while Mean of group B was 10.7 ± 1.6 days, where P value was $< 5\%$ so it is statistically significant between both groups as P value less than 5% (Figure 3).

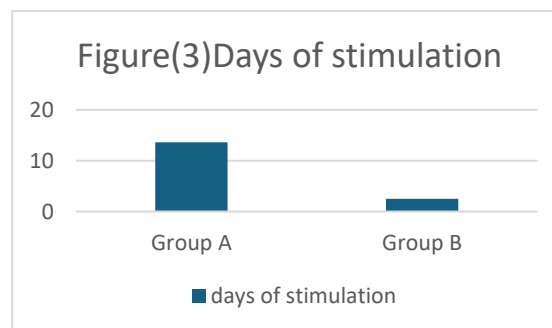


Figure (3): Days of Stimulation

As regarding Number of oocytes retrieved was, Mean of group A was 10.35 ± 2.6 oocytes, while group B mean was 9.99 ± 3.3 oocytes, And P value was $> 5\%$, So Number of oocytes retrieved was statistically insignificant between both groups as P value was $> 5\%$ (Figure 4).

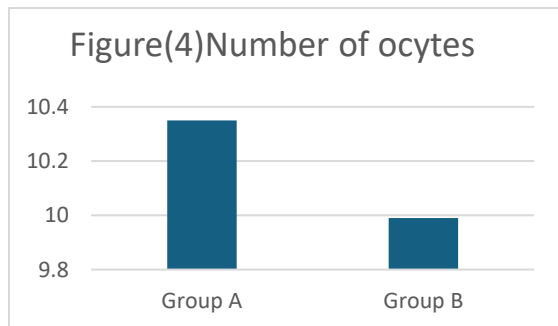
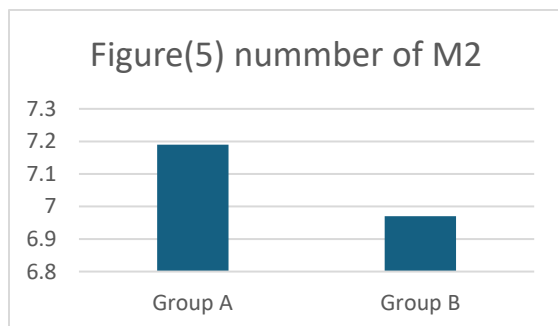


Figure (4): Number of Oocytes

As regarding number of M2 Number of M2 oocytes was, Mean of Group A was 7.19 ± 2.11 M2, and mean of Group B was 6.97 ± 2.29 M2, where P value was $> 5\%$, So Number M2 of oocytes retrieved was statistically insignificant between both groups as P value was $> 5\%$ (Figure 5).



4. Number of M2

Pregnancy rate was, Mean of Group A was $26 \pm 0.44\%$, while Group B mean was $23 \pm 0.42\%$, And P value was $> 5\%$, So pregnancy rate was statistically insignificant between both groups as P value was $> 5\%$ (Figure 6).

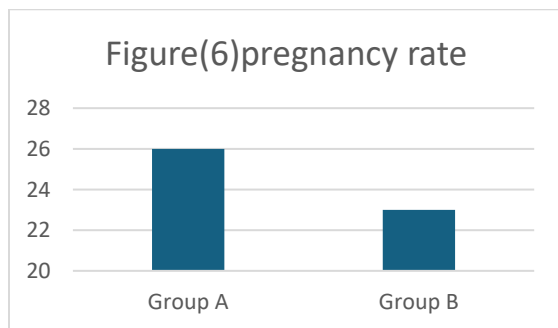


Figure (6): Pregnancy rate

4. Discussion:

Our study was retrospective done in El Galaa Teaching Hospital from January 2015 till end of May 2025, where 200 PCO females were performed ICSI cycles with same drug of stimulation and same starting

dose 150 IU dose of stimulation, These PCO females arranged in to 2 groups, Group A 100 PCO female received long agonist protocol by starting down regulation from day 18 of previous cycle for 14 days by daily half ampoule of decapeptyl 0.1 mg then after down regulation stimulation started. Second group (group B): 100 PCO female received short protocol where starting from day 2 by one ampoule Decapeptyl 0.1 mg then from 3rd day half ampoule of decapeptyl 0.1mg with stimulation drug.

From our results we can observe that Age and BMI, were statistically insignificant between both groups as we designed study to be Age between 30:35 years old and BMI between 30:35 in both groups.

Number of oocytes, numbers of M2 oocytes and pregnancy rate was insignificant statistically difference between long and short protocol in PCO.

While Short protocol in PCO may be better than long protocol in as regarding: days of stimulation which was less with short protocol with statistically significant difference.

Our results agree with other studies done as, study done by Jungheim and Odibo. (17).

Conclusion:

In PCO females short protocol was better than long protocol only in number of days of stimulation. But number of oocytes retrieved and number of M2 oocytes and pregnancy rate were statistically insignificant.

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