

Ovulation Induction Response in Non-Obese Versus Obese Women with Polycystic Ovarian Syndrome

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Background: More than 80% of premenopausal females presenting with Polycystic Ovarian Syndrome (PCOS) have above average BMI.¹ Obesity enhances the magnitude of hormonal and metabolic disturbances leading to anovulation.

Objective: To validate the influence of obesity on response of ovulation induction (OI) by Clomiphene citrate in PCOS related subfertility.

Study Design & Setting: Comparative Analytical study (Dec 2020-Dec 2021) at Fertility Clinic of Benazir Bhutto Tertiary Care Hospital, Rawalpindi, Pakistan. **Method:** Rotterdam criteria used to diagnose PCOS. Women were recruited through non probability consecutive sampling. WHO criteria of BMI=23 kg/m² cutoffs for Asian population used to divide women in; non-obese (Group-A < 23 kg/m²) and obese/overweight (Group-B ≥ 23 kg/m²). OI done with Clomiphene Citrate 50mg/day for Day 2- 6 of the cycle. If failed response, dose was increased by 50mg/month up to 150mg/day maximum over 3 cycles. Response was assessed via ultrasound follicular tracking, Day 21 serum progesterone and B-HCG levels 02 weeks after HCG injection. Data analyzed on SPSS-version 23.0. Continuous variables calculated as Mean/Standard Deviation & categorical variables as Frequency/Percentage. P value < 0.05 considered significant.

Results:

- Total participants 200 (100 in each group).
- Mean age & mean BMI shown in Fig.01.
- Comparison of Rotterdam criteria shows (Table.01) that difference in symptoms of Oligomenorrhoea and amenorrhoea in two groups was significant, P-value (0.009).
- Difference in LH:FSH ratio and Ultrasound features of PCOS were insignificant.
- The difference in majority of OI parameters between two groups was statistically significant. (Table.02)

Table.1. Comparison of Rotterdam Criteria.

Rotterdam Criteria of PCOs		Group A n=100	Group B n=100	Total N=200	p-value
Oligomenorrhea Amenorrhea		87 (87.0)	97 (97.0)	184 (92.0)	0.009
		13 (13.0)	3 (3.0)	16 (8.0)	
LH : FSH (ratio)		10.91	28.34	39.25	0.214
USG features of PCOS ovaries	Present	99 (99.0)	100 (100.0)	199 (99.5)	0.316
	Absent	01 (01.0)	00 (0.0)	1 (0.5)	

Discussion;

PCOS is the leading cause of anovulatory subfertility. Almost 80% of the women with PCOS have ovulatory dysfunction manifested as oligomenorrhea/amenorrhea.² In our study 97% obese women had oligomenorrhea and 3% had amenorrhea comparable with a past study³ where amenorrhea was 5.6% but oligomenorrhoea was in 27.10% cases. LH:FSH ratio was much less and insignificant in index study compared with 94% in another study.⁴ The highest prevalence of polycystic ovarian morphology (PCOM) in a past study was 53%⁵ compared to 100% in index study. This difference can probably be attributable to ethnic variation. The difference in majority of Ovulation Induction parameters between two groups was statistically significant compared to multiple other studies.⁶⁻¹⁰

Conclusion: Obesity control and lifestyle modification are imperative for significant improvement in fertility outcomes for PCOS related subfertility.

Figure.1. Comparison of Mean age & BMI

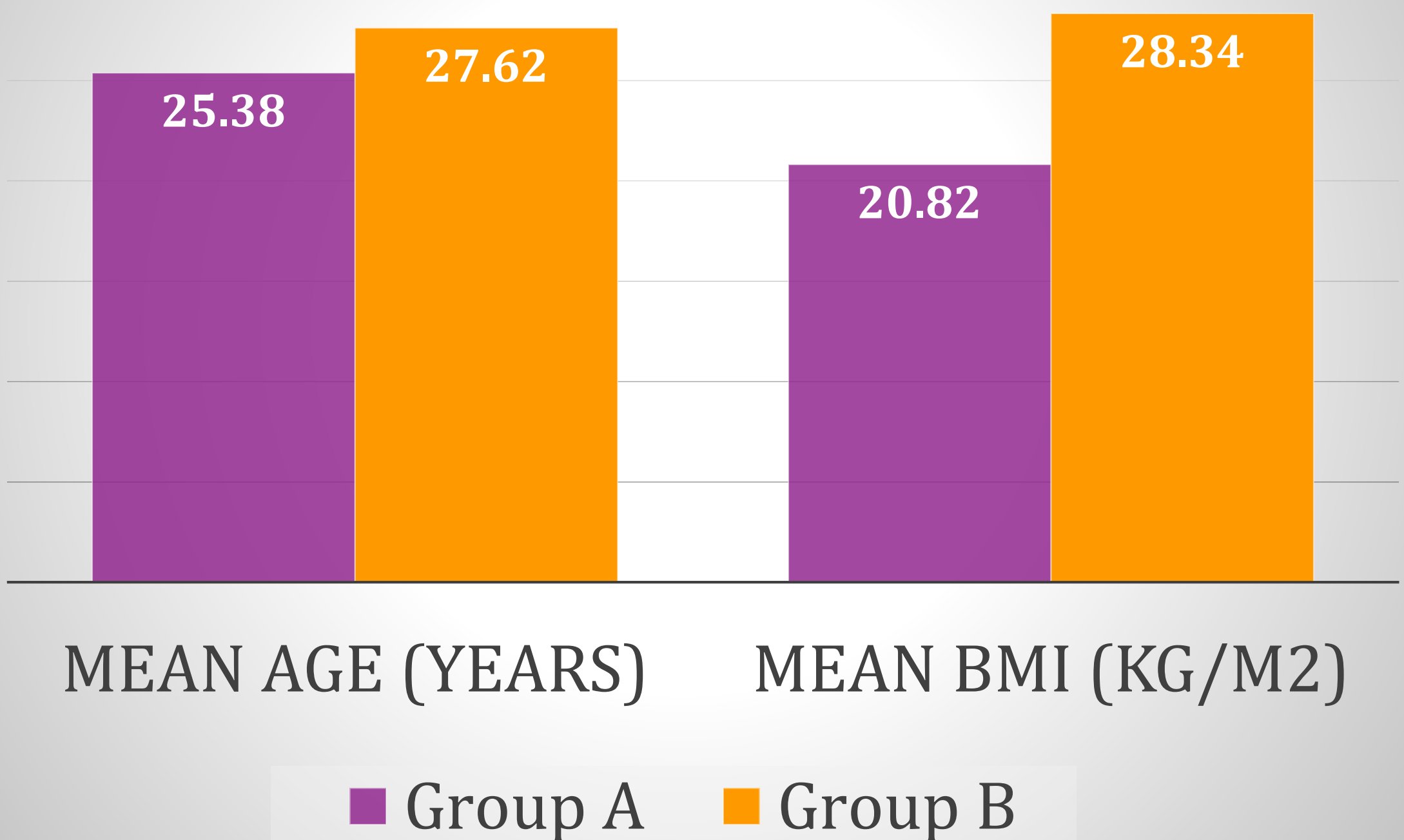


Table.2. Comparison of ovulation induction response.

Parameters of Ovulation induction	Group A n=100	Group B n=100	p-Value
Presence of dominant follicle	52	34	0.01
Serum Progesterone >30ng/ml	21	9	0.01
Serum Beta HCG >50 mIU/L	12	4	0.09

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