

Relationship between ovarian volume, BMI and follicular number and clomiphene response in polycystic ovary syndrome

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Abstract

Polycystic ovary syndrome (PCOS) is one of the most common causes of anovulation in women during reproduction years. In this syndrome the first choice for ovulation induction is clomiphene citrate. Approximately 15-25% of patients have been shown to be resistant to even high levels clomiphene and fail to ovulate. To assess the relationship between ovarian unresponsiveness to clomiphene and some clinical and paraclinical factors in PCOS, a prospective, randomized clinical trial was performed on patients referring to the Royan Institute between May 1998 to May 2000.

Fifty three PCOS patients with at least 5 successive years of infertility and an age range of 25-35 years were randomly selected. All patients suffered from oligomenorrhea, hirsutism and in all patients baseline concentrations of FSH, LH, testosterone, FBS, fasting insulin, androstaneone, 17- α -hydroxy progesterone and DHEAs were determined. In all patients the body mass index (BMI), ovarian volume and the number of follicles in each ovary were measured. After transvaginal sonography on 3rd day of menstrual cycle, the patients were treated with clomiphene citrate in 2 cycles. In the first cycle 100 mg/day clomiphene citrate was administered from day 5 to day 9 of the cycle and if no response, the second cycle included 150 mg/day clomiphene citrate and the rate of ovulation was studied. With respect to ovulation the patients were divided in 2 groups, group 1 with ovulation and group 2 without ovulation Using student test, the two groups were statistically compared. The ovarian volumes were 8.6 ± 4.3 ml (Mean \pm SD) and 8.74 ± 3.7 ml in groups 1 and 2, respectively. The BMI in the 2 groups were 28.0 ± 3.8 and 29.72 ± 4.36 (mean \pm SD), respectively. No significant difference were observed between the 2 groups in these cases. However, 72.4% of patients in group 1 and 45.8% in group 2 had <10 follicles in each ovary ($p < 0.05$). These results suggest no correlation between ovarian volume or BMI and response to clomiphene. However, our findings are highly suggestive of a correlation between number of primary follicles in each ovary and responsiveness to clomiphene, and thus measurement of primary follicle number in ovaries may be a predictive factor for clomiphene responsiveness.

Keywords: PCOS, Ovarian volume, BMI, Clomiphene

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