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Comparing Stair-Step Letrozole with Letrozole/Gonadotropin Combined Regimens for Ovulation Induction in Letrozole-Resistant Infertile PCOS Candidates of Intrauterine Insemination

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ABSTRACT

Introduction: Infertility is a severe challenge for most health systems. One of the medications recently used for ovulation induction is letrozole, applied either alone or in combination with gonadotropin. The present study was conducted to compare ovulation induction in infertile polycystic ovarian syndrome (PCOS) women candidates of intrauterine insemination (IUI) who were resistant to letrozole by two regimens: single-drug stair step letrozole vs. combined letrozole plus human menopausal gonadotropin.

Methods and Materials: In this parallel randomized clinical trial, 60 infertile women with PCOS, candidates for intrauterine insemination, admitted to Milad Infertility Center at Imam Reza Hospital, Mashhad, Iran, were randomly assigned into two groups. The intervention group received 5 mg of letrozole for five days from menstruation day 3 and 7.5 mg of letrozole for another five days if dominant follicles were not observed on days 14-19. Control cases received letrozole (5 mg) from day 3 of the cycle for five days plus Cinnal-f® (75 international units subcutaneously daily) on days 8 and 9. They received another dose of Cinnal-f® if the dominant follicle was not observed on days 10-12 of the cycle. In the case of detecting dominant follicles, 5000 units of intramuscular hCG were prescribed, and 36 hours later, the patients underwent IUI. The outcomes were considered, and data were analyzed using SPSS.

Results: Almost 70% of the stair-step letrozole group and 53.2% in the combined medication had a dominant follicle (p = 0.12), mainly observed after day 14 in the stair-step letrozole group and during days 10-14 in the letrozole/gonadotropin group (p = 0.001). The positive beta-hCG level was significantly higher in the stair-step letrozole group (23.3%) than in the letrozole/gonadotropin group (13.3%). The clinical pregnancy and gestations of 20 weeks or beyond (ongoing pregnancy) were 16.66% and 10% in the stair-step letrozole and letrozole/gonadotropin groups, respectively (p = 0.03).

Conclusion and Discussion: Our study found similar frequencies of dominant follicles between the stair-step letrozole and letrozole/ gonadotropin groups and a significantly higher frequency of chemical pregnancy (positive beta-hCG) and clinical and ongoing pregnancy in the stair-step letrozole group. As an easy and acceptable method for patients, this protocol can be a suitable alternative for ovulation induction.

Keywords: Gonadotropins, Infertility, Letrozole, Ovulation, Polycystic ovary syndrome

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