

COMPARISON OF INTRAMUSCULAR VERSUS SUBCUTANEOUS AQUEOUS PROGESTERONE FOR LUTEAL PHASE SUPPORT IN ARTIFICIALLY PREPARED FROZEN EMBRYO TRANSFER CYCLES

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INTRODUCTION

In frozen embryo transfer (FET), hormonal supplementation is used to prepare the endometrium for successful implantation in the absence of a functional corpus luteum (CL) and endogenous progesterone. Estrogen supplementation is followed by exogenous progesterone replacement. Progesterone use is mandatory to luteinize the endometrium and prepare for successful implantation to give a higher chance of pregnancy. For LPS, exogenous progesterone can be administered by different routes: vaginal, rectal, oral, intramuscular, and recently, the subcutaneous route. Each route has certain advantages and disadvantages. The new technological developments in the field of progesterone production allowed the SC aqueous progesterone to gain more hydro-soluble characteristics owing to the addition of β -cyclodextrin molecule producing a more absorbable product. Obviously, there is an increase in the degree of acceptance, continuation, and satisfaction for the SC progesterone injections as compared to the vaginal and IM routes of administration.

AIM OF THE WORK

To compare the use of intramuscular versus subcutaneous aqueous progesterone for the luteal phase support in artificially prepared frozen embryo transfer cycles regarding the serum progesterone levels on the day of embryo transfer and pregnancy outcome.

SUBJECTS AND METHODS

A prospective randomized paired interventional study, performed in a routine infertility program of private IVF clinics. Conducted on 60 female patients where endometrial preparation was started on day 2 of menstrual bleeding with estradiol valerate pills (Progynova 2 mg) with a dosage of 6 mg daily. A follow-up visit was implemented after 10-14 days, if the endometrial thickness was > 7 mm then luteal phase support was started. Divided into 2 groups: group 1 received progesterone vaginal suppository (400mg twice daily) & intramuscular progesterone 100 mg (once daily), and group 2 received progesterone vaginal suppository (400mg twice daily) & S.C. progesterone 25mg (once daily) for 5 days, then assessing the serum progesterone levels on the day of FET and the clinical pregnancy rate.

RESULTS

In our study, the comparison between our two studied groups regarding progesterone (on the day of FET), the mean value of progesterone on the day of FET in group I was 47.91 ± 13.60 ng/ml, while in group II was 14.23 ± 3.64 ng/ml, there was a highly significant increase in progesterone level in group I more than group II. Moreover, the clinical pregnancy rate found in group I was 66.7%, and in group II was 60.0%, it was insignificantly higher in group I with no significant difference between both groups. Also the implantation rate in group I was 43.6%, and in group II was 44.6%, there was no significant difference between both groups.

Progesterone levels on day of FET

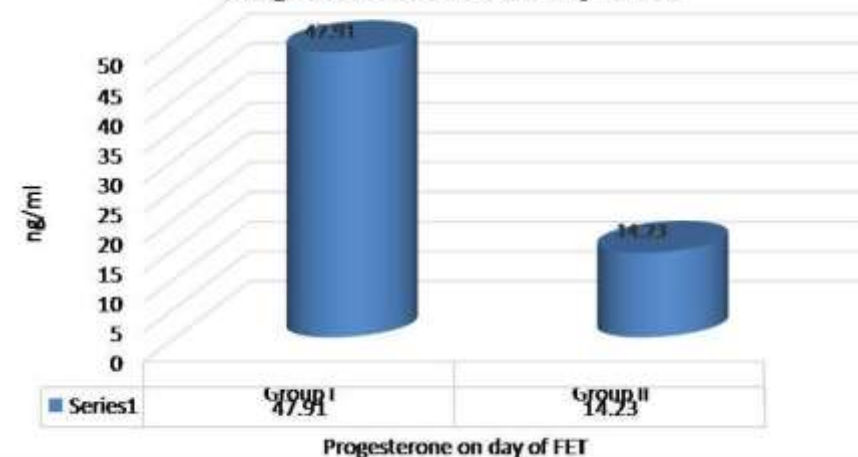


Figure 1: Comparison between the two studied groups regarding progesterone (day of FET).

Clinical pregnancy rate (%)

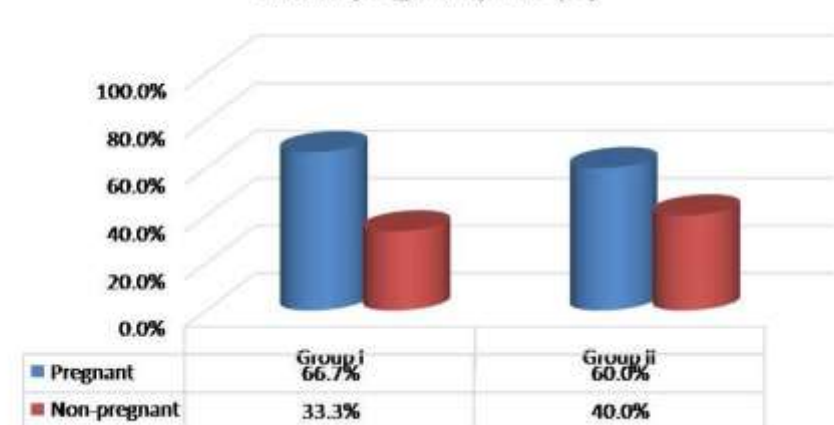


Figure 2: Comparison between the two studied groups regarding clinical pregnancy rate.

Implantation rate

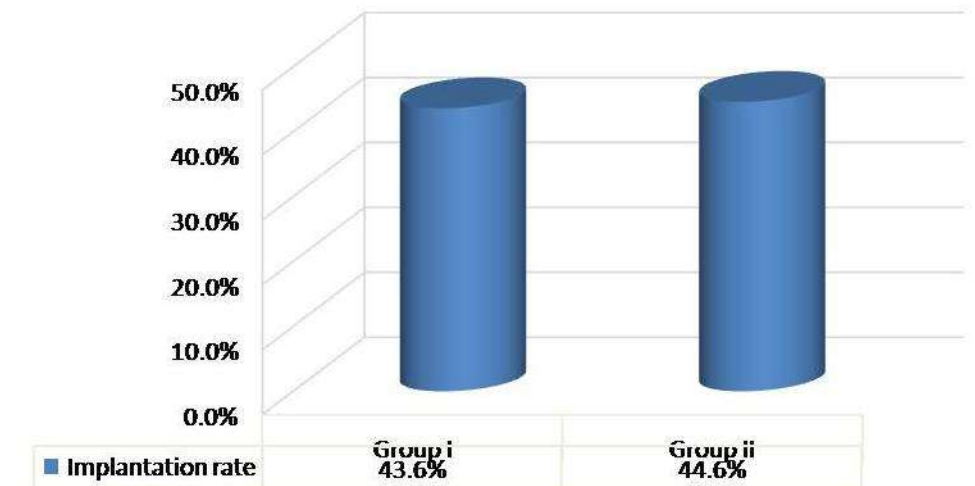


Figure 3: Comparison between the two studied groups regarding implantation rate.

CONCLUSION

Subcutaneous aqueous progesterone is effective as the intramuscular progesterone for the luteal phase support of artificially prepared frozen embryo transfer cycles and has a comparable efficacy on the clinical pregnancy outcome. Also, SC progesterone has fewer side effects, owing to its water-soluble content, resulting in more satisfaction and acceptance by the patient, as compared to IM progesterone. High levels of serum progesterone on the day of FET are not mandatory to ensure pregnancy occurrence and continuation. Although moderate levels of progesterone may produce a more favorable and receptive endometrium for implantation.