

**P-605 Low serum progesterone on the day of frozen embryo transfer after artificial endometrial preparation: exploring the clinical impact of “rescue” strategies**

**A. Herencia<sup>1</sup>, J. Ll cer<sup>2</sup>, J.A. Ortiz<sup>3</sup>, J.C. Castillo<sup>4</sup>, C. Gavil n<sup>5</sup>, B. Moliner<sup>4</sup>, A. Bernabeu<sup>6</sup>, R. Bernabeu<sup>6</sup>**

<sup>1</sup>Instituto Bernabeu, Reproductive Medicine, Madrid, Spain ;  
<sup>2</sup>Instituto Bernabeu, Medical Director, Madrid, Spain ;  
<sup>3</sup>Instituto Bernabeu, Genetics and molecular biology, Alicante, Spain ;  
<sup>4</sup>Instituto Bernabeu, Reproductive Medicine, Alicante, Spain ;  
<sup>5</sup>Instituto Bernabeu, Reproductive Medicine, Mallorca, Spain ;  
<sup>6</sup>Instituto Bernabeu, Medical Director, Alicante, Spain

**Study question:** Can we rescue treatments with low progesterone (PG) levels the day of frozen embryo transfer (FET) by adding subcutaneous progesterone?  
**Summary answer:** After receiving additional supplementation with subcutaneous progesterone, women with low serum progesterone on cryotransfer day, have similar ongoing pregnancy rates as women with normal levels.  
**What is known already:** Micronized vaginal progesterone fails to achieve optimal serum levels in up to 30% of patients receiving frozen embryos under artificial cycles (AC) despite the administration of 400 mg twice daily. Cancelling the thawing process and restarting a new treatment is a very disappointing option for patients and doctors. An alternative strategy is to administrate additional progesterone subcutaneously. The efficacy of the additional administration of subcutaneous progesterone as a “rescue” strategy in terms of clinical outcomes remains to be validated.

**Study design, size, duration:** We included 356 FET performed at Instituto Bernabeu between January 2019 - August 2020 in a retrospective case-control study. Groups were established according to PG levels on the day of the embryo transfer. The Control Group included: patients with optimal progesterone levels ( $\geq 8.8$  ng/ml); while the Rescue Group included those with suboptimal progesterone levels ( $< 8.8$  ng/ml).  
**Participants/materials, setting, methods:** All patients performed frozen embryo transfer after artificial endometrial preparation. All embryo transfers were performed at blastocyst stage after 5 days of progesterone administration. Progesterone levels were assessed the day of the embryo transfer by an electrochemiluminescence immunoassay. Samples were obtained 2-5 hours after the last vaginal progesterone administration.  
Primary outcome was Ongoing Pregnancy Rates (OPR). Secondary outcomes were pregnancy rates (PR), miscarriage rates (MR) and biochemical miscarriage (BM).  
**Main results and the role of chance:** 301 patients were included in the Control Group and 55 in the Rescue Group. No significant differences were found between both groups. OPR rate was 34.7% for patients in the control group versus 26.4% in the rescue group ( $p=0.240$ ).  
PR was 52.5% for patients with optimal PG levels vs 54.5% when PG levels were below 8.8 ng/mL. Both BM and MR tend to be higher in women who had low serum PG: BM (21.4% vs 15.5%) and MR (28.6% vs 18.1%), without reaching significant statistical difference.  
In addition, we analyzed data from a sub-group of patients who received extra subcutaneous progesterone (based on clinician’s decision), despite having normal serum PG levels. No differences in clinical outcomes between these groups were observed either: OPR was 29%, vs 35.4% ( $p=0.241$ ), PR was 51.8% vs 53.7%; BM was 16.7% vs 16.3% and MR was 26.9% vs 17.1% between women who received an extra subcutaneous PG dose versus women who did not, respectively.  
Weight and BMI distribution were homogeneous across groups. A discreet difference was observed in age distribution (control group mean age 41.6 years vs. 39.7 years in the rescue group).  
**Limitations, reasons for caution:** The retrospective collection of data and a limited sample size constitutes the main limitations of the study. Significant statistical differences were not found between groups but still differences might be clinically relevant. Larger studies are needed to reach robust conclusions on the strategy.  
**Wider implications of the findings:** In AC cycles, when supplemented with additional subcutaneous progesterone, women showing low serum progesterone on cryotransfer day may expect similar clinical outcomes as women with normal levels. Pending on confirmatory studies, this strategy could consider as an alternative to cycle cancellation.  
**Trial registration number:** Not applicable