A retrospective cohort study was performed to examine whether, in artificial endometrial preparation for frozen embryo transfer (FET) cycles, Progesterone (P) levels the day prior to embryo transfer of euploid embryos have an impact on pregnancy outcomes. In a private university clinic, 244 FET between January 2016 and June 2017 were analyzed. Endometrial preparation was achieved with estradiol valerate and vaginal micronized progesterone. Serum P and estradiol levels the day prior to embryo transfer were measured. A multivariable analysis to assess the relationship between serum P level and pregnancy outcomes was performed, adjusted for confounding variables. Mean P value was 11.3 ± 5.1 ng/ml. Progesterone levels were split in quartiles: Q1: 8.06 ng/ml; Q2: 8.07 – 10.64 ng/ml; Q3: 10.65 – 13.13 ng/ml; Q4: 13.13 ng/ml. Patients included in the lower P quartile had a significantly higher miscarriage rate and significantly lower live birth rate (LBR) compared to the higher ones. A low serum P level (10.64 ng/ml) one day before FET is associated with a lower pregnancy and LBR following FET of euploid embryos. 

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