OBJECTIVE: Our goal is to determine the effects of elevated serum progesterone (P4) at the day of human chorionic gonadotropin (β-hCG) trigger on the clinical outcomes following in vitro fertilization-embryo transfer (IVF-ET).

DESIGN: Retrospective case control study.

MATERIALS AND METHODS: We reviewed 655 IVF-ET cycles in which ovulation were performed using antagonist protocol. The thresholds of serum P4 were set at 1.4, 2.0 and 2.5 ng/ml. Patients with a level of P4 less than the threshold were subjected to control group, and those with a level higher than threshold were subjected to elevated p4 group. The clinical outcomes between two groups were compared.

RESULTS: The total number of retrieved oocytes was significantly higher in elevated P4 group (18.8±10.8, 22.2±10.8 and 25.2±10.8) than in control (12.2±7.7, 14.0±9.1 and 14.8±9.5) at all three P4 thresholds (p=0.000). The number of blastocysts was also significantly higher in elevated P4 group (4.5±4.5, 5.6±5.5 and 6.2±5.9) than in control (2.7±3.1, 3.2±3.5 and 3.2±3.6) at all thresholds (p=0.000). However, when the thresholds were set to 2.0 and 2.5 ng/ml, the clinical pregnancy rate was lower in the elevated P4 group (41.6% and 37.3%) than in control (46.3% and 46.0%), but the difference was not statistically significant (p=0.197, p=0.144 respectively). The fertilization rate was not different.

CONCLUSION: Our data demonstrated that higher serum progesterone reflects good follicular recruitment and better chance of obtaining blastocysts for transfer or cryopreservation. Our data suggested that elevated P4 levels may adversely affect clinical pregnancy rate in IVF-ET patients. However, the difference was not sufficient to warrant a clinical intervention such as deferring fresh embryo transfer and freezing all embryos for future transfer. To elucidate the mechanisms underlying the increased probability of pregnancy in FET than ET, additional factors should be analyzed.