

**Investigating the relationship between progesterone level on day of Human chorionic gonadotropin (HCG) injection in Intrauterine insemination (IUI) cycle and fertility rates in in patients referring to infertility center of Ardabil University of Medical Sciences**

**Abstract**

**Background:** Intrauterine insemination (IUI) is one of the assisted reproductive techniques that has been widely used in the treatment of infertility. This must be done at a specific time, and progesterone plays an important role in the implantation process, which is a prerequisite for embryonic attachment and invasion.

**Aim:** The aim of this study was to evaluate the relationship between progesterone levels on the day of Human chorionic gonadotropin (hCG) injection in the IUI cycle and fertility in patients referred to the infertility center of Ardabil University of Medical Sciences.

**Materials and Methods:** In this nested case-control study, patients who referred to the Infertility Center of Ardabil University of Medical Sciences for IUI during 2019-2020 were included in the study after initial evaluations and interviews with these patients. In this study, the inclusion criteria were a history of infertility, referring to the infertility center of Ardabil University of Medical Sciences and consent to perform IUI, and the exclusion criteria included a history of smoking by the patient, a history of pelvic infections. Then the pattern of menstrual cycle, history of medical or surgical diseases, history of dyspareunia, number of previous IUIs, causes of infertility, duration of infertility were entered in the relevant checklists. On the day of the HCG injection, a blood sample was taken and the level of progesterone, estrogen, was measured. Then outcome evaluated.

and positive in (21.2%) 18 patients. The mean total IUI history of patients was  $1.71 \pm 0.8$  years. The mean duration of infertility was  $35.11 \pm 18.31$  months. The mean number of patients' follicles was  $2.85 \pm 0.97$ . The mean endometrial thickness of patients was  $7.68 \pm 0.68$  mm. The mean serum progesterone level of patients was  $0.83 \pm 0.59$  months. The highest fertility rate was observed in the serum level of 1.21-1.6 of progesterone. The mean serum level of estradiol was  $816.46 \pm 651.00$  months. There was no statistically significant difference between age, history of IUI and duration of infertility with treatment outcome in the study groups. There was a statistically significant difference between the number of follicles ( $p=0.001$ ), endometrial thickness ( $p=0.001$ ), serum progesterone ( $p=0.001$ ) and estrogen levels ( $p=0.001$ ) with the outcome of treatment in the study groups.

**Conclusion:** The results of this study showed that the highest fertility rate was observed in the serum level of 1.21-1.6 of progesterone in the IUI cycle.

**Keywords:** progesterone, IUI, Human chorionic gonadotropin