

Original Paper

Quantitative assessment of mouse embryo development yielded from in vitro fertilization of ovulated mature oocytes after ovarian stimulation using human menopausal gonadotropin and Estradiol valerate

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Abstract

Background and Objective: Estradiol plays an important role in folliculogenesis and its developmental stages of embryo. This study was done to determine the quantitative assessment of mouse embryo development yielded from in vitro fertilization of ovulated mature oocytes after ovarian stimulation using human menopausal gonadotropin (HMG) and Estradiol valerate (E2).

Materials and Methods: In this experimental study, 40 female NMRI mice were allocated into two groups. Control and treatment groups received HMG alone (10 IU/mouse) and a combination of HMG and E2 (1µg/mouse) in single dose manner, respectively. Following the induction of ovulation by HCG, the oocytes collected and morphologically evaluated. MII oocytes for in vitro fertilization (IVF) were transferred into medium containing capacitated and incubated sperm derived from male NMRI mice. The yielded embryos subsequently transferred into developmental medium for reaching to the blastocyst stage.

Results: The difference between the mean percentage of yielded oocytes and healthy MII oocytes in the control and treatment groups was not significant. The percentages of the fertilized oocytes reached to two-cells was 34.22±21.87 and 36.83±20.68 in control and treatment groups, respectively. The percentages of the blastocys stages of embryos was 49.41±26.5 and 62.02±30.11 in control and treatment groups, respectively.

Conclusion: The addition of estradiol to HMG as an ovarian stimulator can not increase the rates of yielded MII oocytes and embryonic development.

Keywords: Ovarian stimulation, HMG, Estradiol valerat, IVF, Mouse

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