

In vitro maturation and fertilization of immature oocytes: A comparative study of fertilization techniques

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摘要

Abstract

PURPOSE: Our purpose was to investigate the factors influencing maturation and fertilization of immature oocytes. **METHODS:** Immature oocytes were obtained from women undergoing cesarean section. They were cultured in the maturation medium either with or without cumulus cells. After maturation to metaphase II, they were randomly fertilized by in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI). **RESULTS:** After incubation for 48 hr, 441 oocytes (42.8%) reached metaphase II. Among them, 56.6% of cumulus-enclosed oocytes, but only 29.2% of denuded oocytes, reached metaphase II. Of the 289 cumulus-enclosed oocytes, the fertilization rates by IVF and ICSI were 56.3 and 84.1%, respectively ($P < 0.01$). Of the 152 denuded oocytes, the fertilization rates by IVF and ICSI were 39.5 and 84.5%, respectively ($P < 0.01$). The cleavage rates, however, were similar. **CONCLUSIONS:** Cumulus cells are beneficial in the maturation of human oocytes in vitro and that ICSI increases the fertilization rate for the in vitro matured oocytes. The developmental potential of the fertilized oocytes, however, is similar irrespective of the fertilization method or the presence or absence of cumulus cells.