

عنوان مقاله:

Effects of selenium, calcium and calcium ionophore on human oocytes in vitro maturation in a chemically defined medium

محل انتشار:

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خلاصه مقاله:

Background: In vitro maturation (IVM) of human oocytes is an emerging procedure quickly incorporated into the world of assisted reproductive technologies. As an effective method of in vitro maturation, several studies have reported the critical role of differentiations on activating the complex process involved in both gamete maturation and fertilization. **Objective:** In this study, we supplemented a chemically defined medium with different combinations of selenium, calcium and calcium ionophore concentrations to obtain the best rate of human oocytes maturation, survival, and fertilization. **Materials and Methods:** As an experimental study, Three combinations of [selenium (5 µg/ml), calcium (5 µg/ml) and calcium ionophore (1 µg/ml)], [selenium (10 µg/ml), calcium (7 µg/ml) and calcium ionophore (2 µg/ml)] and [selenium (15 µg/ml), calcium (10 µg/ml) and calcium ionophore (5 µg/ml)] added to the chemically defined medium and the morphology of oocytes assessed after 22-24 hours in vitro maturation of the oocytes. **Results:** The highest percentage of MII (meiosis II) oocytes (68%), developing beyond the morula (20.1%) and the blastocyst formation (11.1%) observed in oocytes treated with 15µg/ml selenium, 10µg/ml calcium and 5µg/ml calcium ionophore. Moreover, we showed the significant rate of survival in each three combinations after 36, 72 and 96 hours. **Conclusion:** Maturation and activation of oocytes may be triggered by changes in intracellular ion concentrations as second messengers in signal transduction pathways. Here, we received the highest percentage of in vitro maturation and fertilization among three combinations of selenium, calcium and calcium ionophore treatments. Using this combination of ions beside other factors might be useful for the enrichment of the human oocytes IVM medium.

کلمات کلیدی:

Human oocytes, In vitro maturation (IVM), Selenium, Calcium, Calcium ionophore

لینک ثابت مقاله در پایگاه سیویلیکا:

