عنوان مقاله:

Therapeutic effects of organic zinc on reproductive hormones, insulin resistance and mTOR expression as a novel component in a rat model of PCOS

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 23, شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Faeze Fazel Torshizi - *Department of Animal Science, Science and Research Branch, Islamic Azad University, Tehran, Iran*

Mohammad Chamani - *Department of Animal Science, Science and Research Branch, Islamic Azad University, Tehran, Iran*

Hamid Reza Khodaei - *Department of Animal Sciences, Islamic Azad University, Golpayegan Branch, Isfahan, Iran*

Ali Asghar Sadeghi - *Department of Animal Science, Science and Research Branch, Islamic Azad University, Tehran, Iran*

خلاصه مقاله:

Objective(s): Zinc is an effective factor in the reproductive system. Insulin resistance (IR) is known as an important disorder in patients with polycystic ovary syndrome (PCOS). Mammalian target of rapamycin (mTOR), which controls key cell activities, in particular, is activated in disorders such as PCOS. The present study was conducted to observe the therapeutic effects of organic zinc on IR, mTOR gene expression, and pathogenesis of PCOS in a rat model induced-PCOS. Materials and Methods: Experimental treatments were performed on control and treated groups, consisting of healthy controls (Control, water, and standard feed intake and daily injection of sesame oil alone), Polycystic control (PCO, injection of 4 mg/kg estradiol valerate (EV) for four weeks). Treated groups (PCO-ZM 25, PCO-ZM 75, and PCO-ZM 175) after 4 weeks of receiving EV, were daily given three levels of 25, 75, and 175 mg zinc methionine/kg BW for 15 days, respectively.Results: Injection of EV dramatically increased body and ovarian weights, levels of LH, testosterone, estradiol, triglyceride, fasting insulin, fasting glucose, HOMA-IR, IGF-1, gene expression of mTOR, and number of cysts ($P<0.05$). It also reduced the level of progesterone, HDL-C, and the number of antral follicles ($P<0.05$). However, by increasing zinc-methionine application especially at 175 mg/kg BW, the induction effects of EV were improved on ovarian cysts ($P<0.05$). Conclusion: Organic zinc showed beneficial effects in the EV induced PCOS rats via decreased insulin resistance and mTOR expression, restored the hormonal .profile, and decreased the number of cysts in the ovaries

کلمات کلیدی:

insulin resistance, mTOR, Polycystic ovary syndrome, Rat, Zinc-methionine