

عنوان مقاله:

Effects of gamma radiation on fetal development in mice

محل انتشار:

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خلاصه مقاله:

Background: Many cancer patients receive radiotherapy which may lead to serious damages to the ovary storage and the matrix muscle state. Some of these patients may admit to infertility clinics for having pregnancy and on the other hand hormonal administration for superovulation induction is a routine procedure in assisted reproduction technology (ART) clinics. Objective: This study aimed to investigate fertility and fetuses of hormone treated super ovulated female mice who had received whole-body gamma irradiation before mating. Materials and Methods: Female mice were randomly categorized into a control group and 3 experimental groups including: Group I (Irradiation), Group II (Superovulation), and Group III (Superovulation and Irradiation). In hormone treated groups, mice were injected with different doses of 59Tpregnant mare's serum gonadotropin (PMSG) followed with human chorionic gonadotropin (HCG). Irradiation was done using a Co-60 gamma ray generator with doses of 2 and 4 Gy. Number of fetuses counted and the fetus's weight, head circumference, birth height, the number of live healthy fetuses, the number of fetuses with detected anomalies in the body, the sum of resorption and arrested fetuses were all recorded as outcome of treatments. Results: In the group I and group II, increased radiation and hormone dose led to a decrease in the number of survived fetuses (45 in 2 Gy vs. 29 in 4 Gy for irradiated group) as well as from 76 in 10 units into 48 in 15 units. In the group III, a higher dose of hormone in the presence of a 2 Gy irradiation boosted the slink rate; i.e. the number of aborted fetuses reached 21 cases while applying the dose of 15 lu, whereas 6 cases of abortion were reported applying the hormone with a lower dose. Among different parameters studied, there was a significant difference in parameters of weight and height in the mouse fetuses ($p=0.01$). Conclusion: The data indicated that use of ovarian stimulating hormones in mice that received pre mating gamma irradiation did not significantly increase the pregnancy rates.

کلمات کلیدی:

Gamma rays, Whole body irradiation, PMSG-HCG

