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THE EFFECT OF SAFFRON ON THE CLEAVAGE PROCessESS OF FROZEN-THAWED TWO-CELLSURIAN MICE EMBRYO

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Abstract Background and objectives: There are some reports on the negative impacts of vitrification on the cleavage of two-cell embryos. On the other hand, some other studies indicated the protective and antioxidative effects of saffron on cleavage process of not vitrified two-cell embryos. Therefore, the current study aimed at evaluating the effect of saffron on the cleavage process of vitrified two-cell embryos. **Materials and methods:** In the current experimental study, Balb/c female mice were put with males following the ovulation induction, and then their spinal cords were experimentally injured 44-48 hours after vaginal plaque check, and the positive mice received hCG (human chorionic gonadotropin) injection. The provided two-cell embryos were collected by the flashing method and incubated at 37°C with CO₂. The embryos were randomly allocated into two group of pre- and post-vitrification in which each group was divided into 2 subgroups of with and without saffron. The saffron dose consumed in the current study was 10 µg/mL. In the post-vitrification group, embryos were thawed after one week and the cell division was monitored microscopically. The obtained data were analyzed with SPSS version 21 using the chi-square test to evaluate the relationship between the groups; $P \leq 0.05$ was considered the level of significance. **Results:** The embryo cleavage rate in the pre-vitrification group, subgroup with saffron, was significantly higher in blastocyst stage compared with that of without saffron subgroup ($P = 0.0008$). The embryo cleavage rate in the post-vitrification group, subgroup with saffron, was significantly higher in blastocyst stage compared with that of the subgroup without saffron ($P = 0.001$). **Conclusion:** Results of the current study indicated the effectiveness of saffron in survival rate and cleavage process of mice embryo to reach the blastocyst stage, in both pre- and post-vitrification groups.