

عنوان مقاله:

Effect of quercetin on the number of blastomeres, zona pellucida thickness, and hatching rate of mouse embryos exposed to actinomycin D: An experimental study

محل انتشار:

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خلاصه مقاله:

Background: Quercetin is a flavonoid with the ability to improve the growth of embryos in vitro, and actinomycin D is an inducer of apoptosis in embryonic cells. Objective: The aim was to evaluate the effect of quercetin on the number of viable and apoptotic cells, the zona pellucida (ZP) thickness and the hatching rate of preimplantation embryos exposed to actinomycin D in mice. Materials and Methods: Two-cell embryos were randomly divided into four groups (Control, Quercetin, actinomycin D, and Quercetin + actinomycin D group). Blastocysts percentage, hatched blastocysts, and ZP thickness of blastocysts was measured. The number of blastomeres was counted by Hoechst and propidium iodide staining and the apoptotic cells number was counted by TUNEL assay. Results: The results showed that the use of quercetin significantly improved the growth of embryos compared to the control group ($p=0.037$). Moreover, quercetin reduced the destructive effects of actinomycin D on the growth of embryos significantly ($p=0.026$). Conclusion: quercetin may protect the embryos against actinomycin D so that increases the number of viable cells and decreases the number of apoptotic cells, which can help the expansion of the blastocysts, thinning of the ZP thickness and increasing the hatching rate in mouse embryos.

کلمات کلیدی:

Quercetin, Embryonic development, Zona pellucida, Apoptosis, Blastocyst inner cell mass

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