

عنوان مقاله:

Subchronic effects of different doses of Zinc oxide nanoparticle on reproductive organs of female rats: An experimental study

محل انتشار:

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خلاصه مقاله:

Background: Zinc performs many biochemical and physiological functions; however, toxicological studies demonstrate that Nano-zinc oxide has harmful effects on human health and environmental species in high concentrations. Objective: The aim of this study was to investigate the toxicity of zinc oxide nanoparticles on reproductive tissues of female rat. Materials and Methods: Eighty female Wistar adult rats weighing 180–200 gr, divided into eight groups (n= 10 in each group) including control, sham (treated with saline), and six groups injected with different doses of zinc oxide nanoparticle with 10–30 nanometer size (4, 8, 25, 50, 100, and 200 mg/kg) twice a week for four weeks. At the end of the study, the rats were bled and slaughtered; the Ovary and Uterus were taken for histopathology studies and blood samples were transferred to the laboratory for biochemical analysis. Results: Microscopic diagnoses in ovary tissue were included; increase in the corpus luteum, follicular cysts, inflammatory cells infiltration and fibrosis. Histopathological changes in ovary in a dose-dependent manner. In uterus tissue the lesions consisted; epithelial destruction, hyperplasia of endometrial glands. The Estrogen and Progesterone level in the serum of rats increased in low doses and reduced in a dose-dependent manner at high doses. Conclusion: The results of the current study proved the toxicity of zinc oxide nanoparticles on the ovary and uterus organs at high concentrations, so further investigation is needed to reduce these effects.

کلمات کلیدی:

Zinc oxide, Nanoparticles, Ovary, Uterus, Toxicity

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