

عنوان مقاله:

Effect of zinc oxide nanoparticles on viability of human spermatozoa

محل انتشار:

مجله طب تولید مثل ایران, دوره 11, شماره 9 (سال: 1392)

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نویسندگان:

Abolfazl Barkhordari - *Department of Occupational Health, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran*

Seyedhossein Hekmatimoghaddam - *Department of Laboratory Sciences, School of Paramedicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran*

Ali Jebali - *Department of Medical Nanotechnology, Pajooresh Lab, Yazd, Iran*

Mohammad Ali Khalili - *Research and Clinical Center for Infertility, Shahid Sadoughi University of Medical Sciences, Yazd, Iran*

خلاصه مقاله:

Background: The extensive use of different nanoparticles has raised great concerns about their occupational and biological safety. Objective: The aim of this study was to evaluate the cytotoxic effect of zinc oxidenanoparticles (ZnO NPs) on viability of spermatozoa. Materials and Methods: Semen samples were obtained from 15 healthy persons, and were analyzed using WHO guidelines. Each semen sample was separately incubated with different concentrations of ZnO NPs (10, 100, 500, and 1000 $\mu\text{g}/\text{mL}$) at 37°C for 45, 90, and 180 minutes. Then, the cell death percentage of spermatozoa was measured by MTT assay. Mann-Whitney test was used for comparison of different times and concentrations. Results: The maximum cell death percentage was 20.8%, 21.2%, and 33.2% after 45, 90, and 180 minutes, respectively. In case of concentration, the highest concentration (1000 $\mu\text{g}/\text{mL}$) of ZnO NPs led to the highest toxicity for all incubation times. Statistically, there were significant differences in cell viability after 180 minutes vs. 45 and 90 minutes. Conclusion: This study indicated that cytotoxicity of ZnO NPs is dose and time dependent

کلمات کلیدی:

Spermatozoa, Viability, MTT assay, ZnO nanoparticles, Semen, Cytotoxicity

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