

عنوان مقاله:

Acute and chronic effects of gold nanoparticles on sperm parameters and chromatin structure in Mice

محل انتشار:

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خلاصه مقاله:

Background: The particles in the range of 1-100 nm are called nanoparticles^{56T}. Gold nanoparticle is one of the most important metal nanoparticles with wide usage^{56T}. **Objective:** 56TThis study investigated the effects of gold nanoparticles on sperm parameters and chromatin structure in mice^{56T}. **Materials and Methods:** 56TIn this experimental study, 72 male bulb-c mice were divided into 9 groups including: 4 Sham groups (Sc 1-4), 4 experimental groups (Au 1-4), and 1 control group (C). Experimental groups received 40 and 200 µg/kg/day soluble gold (Au) nano-particles for 7 and 35 days, by intra peritoneal injection, respectively. Sham groups were treated with 1.2 mM sodium citrate solution with 40 and 200 µg/kg/day doses for same days and control group did not receive any materials. Motility and Morphology of spermatozoa were analyzed. Chromatin quality was also evaluated using AB (Aniline blue), TB (Toluidine blue) and CMA3 (Chromomycin A3) staining methods.**Results:** 56TThe sperm analysis results showed that motility and morphology of sperm in experimental groups (especially in groups that have been treated for 35 days with nano-particles) had significant decrease in comparison with control group. TB, AB and CMA3 results showed a significant increase in abnormal spermatozoa from all Au-treated groups^{56T}.**Conclusion:** 56TGold nano-particles^{56T} 56Tfirstly can reduce the sperm parameters such as motility and normal morphology and secondly affect sperm chromatin remodeling and cause the increase instability of chromatin and also increase the rate of sperm DNA damage. These deleterious effects were more obvious in maximum dose and chronic phase^{56T}

کلمات کلیدی:

56TNanoparticles, Sperm, Chromatin, Mouse^{56T}

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