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Pathological and clinicopathological studies on the effect of I/P injection of silver nanoparticles in rats

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The present work was designed to study the toxic potential of silver nanoparticles (AgNPs) on the development of histopathological alterations in various tissues, changes of hematological and biochemical parameters. Characterization of the synthesized silver nanoparticles revealed spherical shape of formed particles with approximately 8.7 nm diameter. A total of 120 mature albino rats (60 male and 60 female rats) were injected intraperitoneally (I/P) with different doses of AgNPs (0.5, 1, 2 and 4 mg/kg b.wt) for 14 and 28 days also rats were injected I/P with 0.5 mg/kg b.wt twice weekly for 90 days. Results revealed hematological and biochemical alterations that varied with different doses, on the other hand various histopathological alteration in various tissue were observed including cholangiopathy, hepatocellular degeneration, apoptosis, renal tubular necrobiotic changes, pneumocytes hyperplasia, necrosis of lymphoid elements involving the splenic tissue, neuronal degeneration with neuronophagia associated with glial cell proliferation, testicular degeneration in addition to hyperplastic reaction involving the accessory glands, along with diffuse brown pigment deposition in various tissues that was dose dependent.

Biography

Mohamed Ibrahim Shaalan is Assistant Lecturer of Veterinary Pathology, Cairo University. He has recently obtained MSc degree in veterinary pathology and he is a member of Egyptian veterinary medical society for pathology and clinical pathology. Research interests include toxic pathology, molecular pathology and nanotechnology.

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