

Nanostructure erbium oxides: morphological evidence of toxic effect in animal tissues

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The purpose of this study is to investigate effect of nanostructure Er_2O_3 the immune system and influence of nanoparticles on the structure of some animal tissues.

Analysis have shown that after dosage of nanoparticles for 1 day, the amount of B-lymphocyte has increased up to 48% from 31% which considered to be a normal. Later T-lymphocytes were activated ,and showed an increase of 69% for in 1 day compared to, the normal level of 66% . On the seventh day the effects were 61% and 78% for B-lymphocytes and T-lymphocytes respectively. On the 21st day, results showed that amount of both B- and T-lymphocytes has significantly decreased and reached to normal levels for B-lymphocytes - at45%, and T-lymphocytes at- 68%. On the 28th day the data did not differ from the normal levels for both B-lymphocytes at - 34%,and T-lymphocytesat - 67%.

Figures

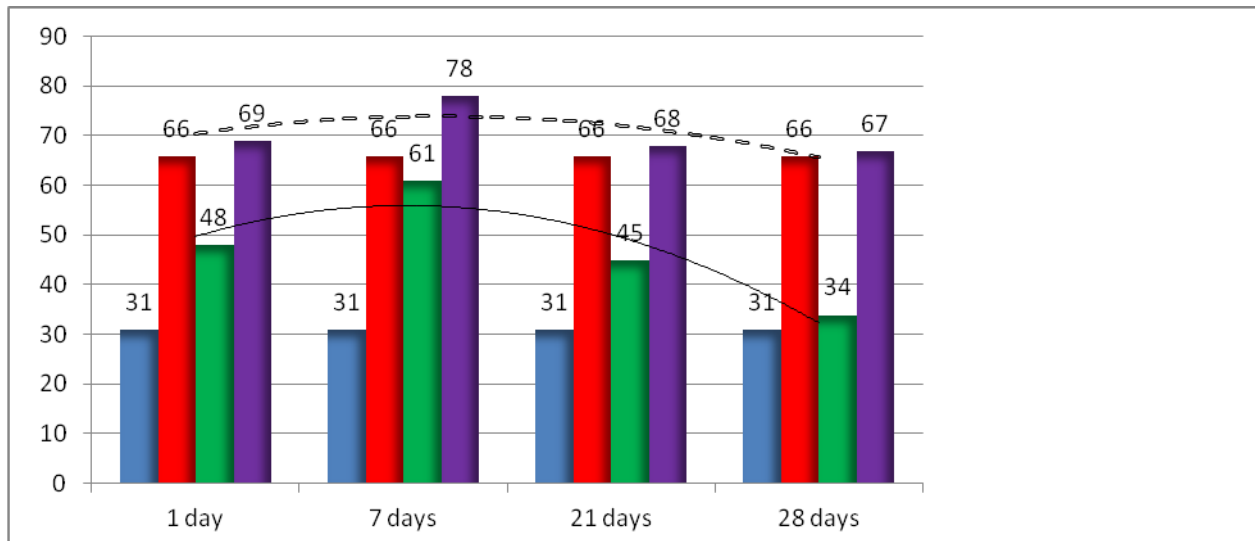
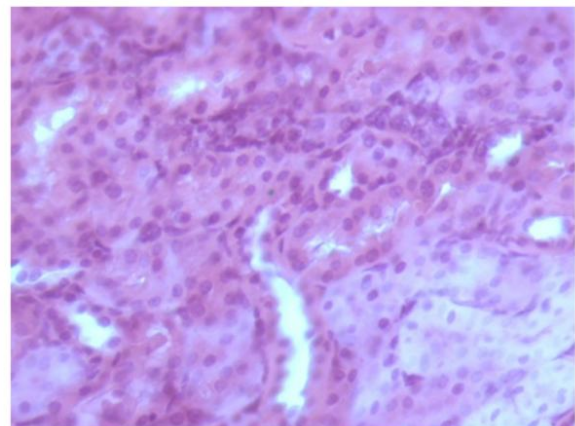
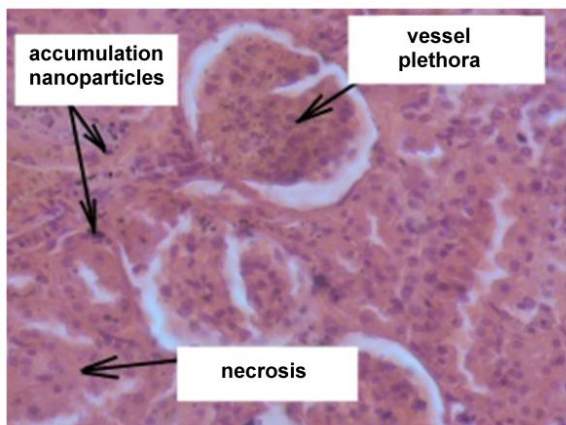


Diagram of changes of B- and T- lymphocytes amount in the blood of rats in different periods after dosage of nanoparticles

Histomorphological analysis revealed morphological changes in the tissue structure of thyroid gland, liver, spleen and kidney of when laboratory animals were dosed orally with 8% Er_2O_3 was orally dosed in 1 ml dosage for 30 days.



Modification of kidney tissue when influenced by nanoparticles of erbium oxide(Er_2O_3) at concentration of 2,5 mg/kg (A) in comparison with control group (B)

Microscope images showed(above) damage to liver tissue. The images have shown discomplexation of hepatic beams in the liver, and separate hemorrhage sites including lysis of hepatocyte cores. Varying amounts of nanoparticles revealed significant numbers of separate hepatocytes in number of rats. In addition, cells with core pyknosis are also observed confirming that there are of karyopyknosis, karyorrhexis and vessel plethora.