



The role of nanoparticles and high energy x-ray in increasing the sensitivity enhancement ratio(SER) for ovary malignant cells

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Abstract:This article aims to improve radiation therapy for patients with ovarian cancer with the aid of nano particles that possess high atomic number and high-energy X-rays. These nano particles are being added to the cancerous tumor. In this study we simulate insertion gold, gadolinium, silver and titanium nanoparticles as radio-sensitizing agent each type interacts with x-ray photons whose energy ranged from 2MeV to 20 MeV. The existence of nanoparticles is working to improve ovary cross section. High energy of X-ray causes to increase production of free radicals. In this article we get an enhancement in ovary radiotherapy this enhancement represented in increasing the number of destroyed cancer cells and reduce the number of surviving tumor cells. From these numbers we get sensitivity enhancement ratio (SER). The SER percentages were as follow 13.58% was SER for gold nano particles. 13.02% was SER for gadolinium nanoparticle. 12.52% was SER for silver nano particles. 10.85% was SER for Titanium nano particles.

Key words: ovary cancer, sensitivity enhancement ratio (SER), high energy x-ray, survival cancer cells, nanoparticles.

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