A review on gold nanoparticles radiosensitization effect in radiation therapy of cancer
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ABSTRACT
In the recent years, application of nanoparticles in diagnosis and treatment of cancer has been the issue of extensive research. Among these studies some have focused on the dose enhancement effect of gold nanoparticles (GNPs) in radiation therapy of cancer. On the other hand, some studies indicated energy dependency of dose enhancement effect, and the others have studied the GNP size effect in association with photon energy. However, in some aspects of GNP-based radiotherapy the results of recent studies do not seem very conclusive in spite of relative agreement on the basic physical interaction of photoelectric between GNPs and low energy photons. The main idea behind the GNP dose enhancement in some studies is not able to explain the results especially in recent investigation on cell lines and animal models radiation therapy using GNPs. In the present article the results of the available reports and articles were analyzed and compared and the final status of the GNP-RT was discussed.

Keywords: Gold nanoparticle, Radiation therapy, Monte Carlo method, Dose enhancement effect