

عنوان مقاله:

Specific Delivery of ZHER2 affibody-conjugated gold nanoparticles as radiosensitizer to HER2-overexpressing malignant cells

محل انتشار:

چهاردهمین کنگره بین المللی سرطان پستان (سال: 1397)

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خلاصه مقاله:

Introduction & Aim: Over-expression of HER2 is associated with enhanced invasiveness and also resistance to chemotherapy and radiotherapy in patients with cancer. Today, antibody-drug conjugates (ADCs) which are produced by conjugation of a toxin to a mAb are used for specific ablation of malignant cells. Affibody as a member of the antibody mimics family has been introduced in recent years as a tumor targeting agent. Nanoparticles which are composed of gold could act as radiosensitizer to enhance the radiation effects on tumor cells. **Methods:** In our study, malignant cells SK-BR-3, HN-5, SK-OV-3, and MCF-7 with different level of HER2 expression were treated by ZHER2 affibody, prepared gold nanoparticle, and ZHER2 affibody-conjugated gold nanoparticles and after X-ray radiotherapy, cell viability was investigated using MTT assay. **Results;** The synthesized GNPs could reduce viability of all tested malignant cell lines in a dose dependent manner while SK-BR-3 and MCF-7 cell lines were the most sensitive cells. In a similar manner, GNP-ZHER2 affibody conjugate had toxic effect on treated malignant cells but at a lower level compared to GNP. X-ray radiation therapy of the cells treated with GNP resulted in diminished viability of all treated cancerous cells. On the other hand, X-ray radiation in combination with GNP-ZHER2 affibody conjugate significantly reduced viability of the malignant cells with higher expression level of HER2. **Conclusion:** Our obtained in vitro results indicated that GNP-ZHER2 affibody conjugate could be successfully employed as radiosensitizer for specific treatment of malignant cell lines with high expression of HER2 receptors.

کلمات کلیدی:

.HER2, Gold nanoparticle, ZHER2 affibody, ZHER2-conjugated Gold nanoparticles, X-ray Radiotherapy

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