

عنوان مقاله:

Evaluation of the Possible Utilization of ^{68}Ga -DOTATOC in Diagnosis of Adenocarcinoma Breast Cancer

محل انتشار:

مجله پزشکی هسته ای و زیست شناسی آسیا اقیانوسیه, دوره 6, شماره 1 (سال: 1397)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Objective(s): Studies have indicated advantageous properties of [DOTA-DPhe1 , Tyr3] octreotide (DOTATOC) in tumor models and labeling with gallium. Breast cancer is the second leading cause of cancer mortality in women, and most of these cancers are often an adenocarcinoma. Due to the importance of target to non-target ratios in the efficacy of diagnosis, the pharmacokinetic of ^{68}Ga -DOTATOC in an adenocarcinoma breast cancer animal model was studied in this research, and the optimized time for imaging was determined. Methods: ^{68}Ga was obtained from $^{68}\text{Ge}/^{68}\text{Ga}$ generator. The complex was prepared at optimized conditions. Radiochemical purity of the complex was checked using both HPLC and ITLC methods. Biodistribution of the complex was studied in BALB/c mice bearing adenocarcinoma breast cancer. Also, PET/CT imaging was performed up to 120 min post injection. Results: The complex was produced with radiochemical purity of greater than %98 and specific activity of about 40 GBq/mM at optimized conditions. Biodistribution of the complex was studied in BALB/c mice bearing adenocarcinoma breast cancer indicated fast blood clearance and significant uptake in the tumor. Significant tumor:blood and tumor:muscle uptake ratios were observed even at early times postinjection. PET/CT images were also confirmed the considerable accumulation of the tracer in the tumor. Conclusion: Generally, the results proved the possible application of the radiolabelled complex for the detection of the adenocarcinoma breast cancer and according to the pharmacokinetic data, the suitable time for imaging was determined as at least 30 min after injection

کلمات کلیدی:

Adenocarcinoma breast cancer, Gallium-68, PET/CT imaging

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