عنوان مقاله:

Preparation and biodistribution assessment of low specific activity 177Lu-DOTATOC for optimization studies

محل انتشار:

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نویسندگان:

Hassan Yousefnia - *Nuclear Science and Technology Research Institute (NSTRI), Tehran, Iran*

Masoumeh-Sadat Mousavi-Daramoroudi - *Radiation Application Group, Faculty of Nuclear Engineering, Shahid Beheshti University, Tehran, Iran*

Samaneh Zolghadri - *Nuclear Science and Technology Research Institute (NSTRI), Tehran, Iran*

Fereydoun Abbasi-Davani - *Radiation Application Group, Faculty of Nuclear Engineering, Shahid Beheshti University, Tehran, Iran*

خلاصه مقاله:

Introduction: Somatostatin receptors expressed on a wide range of human tumors, are potential targets for the peptide receptor radionuclide therapy (PRRT). In this study, 177Lu-[DOTA-DPhe1, Tyr3]octreotide (177Lu-DOTATOC) as an agent for PRRT was prepared and its biodistribution was studied in rats. Methods:The best condition for the preparation of the 177Lu-DOTATOC radiolabeled complex was determined by various experiments. Radiochemical purity of the radiolabeled complex was checked using ITLC method. The stability of the complex in room temperature and in human serum was studied up to 48 h. The biodistribution of 177Lu-DOTATOC solution was investigated in male rats at each selected interval time (2, 4, 24, 48, 72 and 168 h) after injection and compared with the biodistribution of 177LuCl3 solution in the same-type rats. Results:177Lu-DOTATOC was prepared successfully with radiochemical purity of higher than 99% in 30 min at the optimized conditions. The stability of the radiolabeled complex at room temperature and in human serum at 37 °C showed no decrease in the radiochemical purity even after for 48 h. The biological behavior of the complex showed a major difference uptake with 177LuCl3 solution especially in the liver and spleen and also in somatostatin receptor-positive tissues such as pancreas and adrenal. Conclusion: The results showed that 177Lu-DOTATOC has the comparable pharmacokinetic with the other .DOTATOC complexes, while has completely different pattern compared with 177Lu cation

کلمات کلیدی:

DOTATOC, 177Lu, Biodistribution