عنوان مقاله:

Human organ absorbed dose estimation of 166Ho-BPAMD complex based on biodistribution data of male Syrian rats

محل انتشار:

مجله پزشکی هسته ای ایران, دوره 27, شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Samaneh Zolghadri - *Material and Nuclear Fuel Research School, Nuclear Science and Technology Research Institute, Tehran, Iran*

Hassan Yousefnia - *Material and Nuclear Fuel Research School, Nuclear Science and Technology Research Institute, Tehran, Iran*

خلاصه مقاله:

Introduction: Recently, 166Ho-BPAMD was introduced as a suitable agent for bone marrow ablation. The aim of this study was to estimate the absorbed dose of this novel agent in the human organs which is necessary before the clinical application. Methods: 166Ho was produced by direct irradiation of 165Ho in the research reactor. 250 µg of BPAMD was added to the vial containing 111 MBq of 166Ho and the pH of the reaction mixture was adjusted to 6 while it was incubated for 45 min at 90-100°C. The strong cation exchanger was applied to improve the radiochemical purity checked by ITLC method. 166Ho-BPAMD was injected to male Syrian rats and the uptake in different organs was assessed. The absorbed dose in human organs was estimated following the mass extrapolation and according to RADAR method. Results:166Ho-BPAMD was prepared with the radiochemical purity of higher than 96%. After injection to male Syrian rats, the most of the activity was observed in the bone tissues. Bone surface and bone marrow received the highest amounts of the absorbed dose with the value of 0.916 and 0.647 mGy/MBq, respectively. Conclusion: Bone marrow to the bone tissue and total body absorbed dose ratio for 166Ho-BPAMD was comparable to the other bone seeking radiopharmaceuticals. 166Ho-BPAMDdelivers safe and reasonably appropriate dose to the human organs and can be considered as a novel bone marrow ablative agent.

کلمات کلیدی:

Absorbed dose, Bone marrow ablation, BPAMD, 166Ho, Syrian rats