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Human Absorbed Dose Assessment of 68Ga-Dotatoc Based on Biodistribution Data in Syrian Rats

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Abstract : The aim of this work was to evaluate the values of absorbed dose of 68Ga-DOTATOC in numerous human organs. 68Ga-DOTATOC was prepared with the radiochemical purity of higher than 98% and by specific activity of 39.6 MBq/nmol. The complex demonstrated great stability at room temperature and in human serum at 37° C at least 2 h after preparation. Significant uptake was observed in somatostatin receptor-positive tissues such as pancreas and adrenal. The absorbed dose received by human organs was evaluated based on biodistribution studies in Syrian rats by the radiation absorbed dose assessment resource (RADAR) method. Maximum absorbed dose was obtained in the pancreas, kidneys, and adrenal with 0.105, 0.074, and 0.010 mGy/MBq, respectively. The effective absorbed dose was 0.026 mSv/MBq for 68Ga-DOTATOC. The results showed that 68Ga-DOTATOC can be considered as a safe and effective agent for clinically PET imaging applications.

Keywords : effective absorbed dose, Ga-68, octreotide, MIRD
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