

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

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020