ORAL PRESENTATIONS

OP01
COMPARISON OF THE THERAPEUTIC POTENTIAL OF THE POLYPHOSPHONATE PEI-MP LABELED WITH 99mTc, 117mSn, 186Re AND 188Re

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Therapeutic use of radiation for selective destruction of tumors is a well-established method currently available. This kind of treatment combines advantages of tumor targeting and systemic administration. The possibility of use radiopharmaceuticals either for curative or for palliative purposes enlarge its therapeutic possibilities.
Aim: In this work we synthesize and evaluate the ligand polyethyleneimine functionalized with methylene phosphonate groups (PEI-MP), through an APD by a Mannich type reaction the biodistribution in animal models of human osteosarcoma, after labelled with 99mTc, 117mSn, 186Re and 188Re.
Materials and methods: Normal Wistar rats were injected in the tail vein, with an activity of 11-13 MBq 117mSn-PEI-MP (20 rats), 186Re-PEI-MP (22 rats)186ReO4- (8 rats), 99mTc-PEI-MP (5 rats). A group of 5 CD1 rats were also used, because gallbladder, in order to evaluate enterohepatic cycle. Normal balb-c mice were also injected with 188Re-PEI-MP (20 mice) and 188ReO4- (20 mice) respectively. We also injected with the same tracers balb-c nude mice with human osteosarcoma (35 mice) and bladder (10 mice) xenotransplante. Half of them were sacrificed 2.5 h after injection and the others after 4 h. The organs were counted in a well counter to determine the biodistibution. Absorbed doses in the main organs were then calculated according to the MIRD recommendation using OLINDA software.
Results and Discussion: PEI-MP shows high dose for bladder and kidney for the tested radionuclides (99mTc, 117mSn, 186Re). Heart shows also a considerable dose. Perenate shows lower doses for all the analyzed organs maintaining bladder and kidneys as target organs. This results are consistent with biodistibution which show moderate reticuloendothelial uptake, reasonable bone-uptake and considerable uptake in the bladder wall. At 4 h 186Re-PEI-MP shows rapid clearance of all organs had taken place as confirmed by the 2.5 h study which indicated considerable and early excretion in the urine and little bone uptake. 186ReO4- showed at 4 h uptake in the stomach, bladder and urine. As expected doses for 99mTc are much lower, however the bladder is the target organ. The normal biodistribution of 188ReO4- shows at 4 hours high uptake by the in the stomach, bladder, thyroid and urine. The absorbed doses are very low. The normal 188Re-PEI-MP shows high dose for bladder, kidney and lung. The absorbed doses are also very low. The 188ReO4- biodistribution at animals with osteosarcoma shows a very high uptake by thyroid, being the absorbed doses at a low level. The 188Re-PEI-MP at animals with osteosarcoma shows the maximum uptake at urinary bladder wall, besides its small uptake by the tumor. At animals with bladder cancer shows an improve of uptake by the tumor.
Conclusions: The results obtained with different radionuclides show for the cell lines tested they give different adsorbed dose. This information in very important when metabolic radiotherapy is considered.

OP02
INTRODUÇÃO DE UM NOVO RADIOFÁRMACO PET EM PORTUGAL
Experiência Clínica Inicial com 18F-Fluoreto de Sódio no Carcinoma da Mama

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Introdução: A 18F-Fluoro-desoxiglicose (18F-FDG) é utilizada por rotina no estudo de diversas neoplasias cujas células tumorais apresentem elevada actividade metabólica glicolítica. Contudo, reconhece-se que a 18F-FDG está longe de ser um radiofármaco específico para doenças neoplásicas malignas. Existe, assim, a necessidade crescente de radiofármacos para tomografia por emissão de positrões (PET) que se aproximem da complexa biologia dos tumores.
Com vista ao contínuo desenvolvimento dos métodos de imagem molecular, foi introduzido o 18F-Fluoreto de Sódio (18F-FNa) na prática clínica do nosso Serviço. A decisão da aplicação deste radiofármaco inicialmente em doentes com carcinoma da mama deve-se ao comportamento biológico ambíguo das suas metástases ósseas. Pode tratar-se de metástases predominantemente líticas, geralmente com intensa captação de 18F-FDG ou de metástases predominantemente blásticas, com ausente ou baixa captação de 18F-FDG.
Objectivos: Avaliar a utilidade clínica da PET com 18F-