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Development of 111In-DOTMP as a New Bone Imaging Agent

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Abstract : The objective of this study is the preparation of 111In-DOTMP as a new bone imaging agent. 111In was produced at the Agricultural, Medical and Industrial Research School (AMIRS) by means of 30 MeV cyclotron via natCd(p,x)111In reaction. Complexion of In-111 with DOTMP was carried out by adding 0.1 ml of the stock solution (50 mg/ml in 2 N NaoH) to the vial containing 1 mCi of 111In. pH of the mixture was adjusted to 7-8 by means of phosphate buffer. The radiochemical purity of the complex at the optimized condition was higher than 98% (by using whatman No.1 paper in NH4OH:MeOH: H2O (0.2:2:4)). Both the biodistribution studies and SPECT imaging indicated high bone uptake. The ratio of bone to other soft tissue accumulation was significantly high which permit to observe high quality images. The results show that 111In-DOTMP can be used as a suitable tracer for diagnosis of bone metastases by SPECT imaging.

Keywords : biodistribution, DOTMP, 111In, SPECT
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