CURRENT AND FUTURE DEVELOPMENTS IN RADIOPHARMACEUTICALS

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This paper will attempt to describe the current and future status of radiopharmaceuticals under the following topics. A) Blood cell labeling 1) Invivo labeling of red cells, 2) invitro labeling of red cells, 3) invitro labeling of white cells, platelets and lymphocytes. B) 1) Bifunctional chelates based on EDTA, DTPA, EDDA and IDA and labeled with Tc-99m and Trivalent radionuclides, 2) IDA derived hepatobiliary agents. C) New radiopharmaceuticals of Tc-99m for 1) hepatobiliary studies (other than IDA derivatives) 2) renal imaging, 3) Thrombi localising agents (Plasmin, Streptokinase, Urokinase, Fibrin etc.) labeled with Tc-99m and other radionuclides. 4) New radiopharmaceuticals for myocardial localisation (perfusion) will be described and their relative use will be discussed. D) Future developments in radiopharmaceuticals will involve new concepts, new synthetic compounds, new methods for Tc-99m labeling (solid state reduction systems), and new uses for older agents. Intermediate half life radionuclides (Ru-97, Hg-197, Pb-203, In-111, Sm-153 etc.) should be exploited for further developments and clinical use in Nuclear Medicine. Some approaches in this area will be described.