

LYOPHILISED Tc-99m HMPAO LABELLED LEUCOCYTES SCINTIGRAPHY IN THE DIAGNOSIS OF INFLAMMATION DISEASE

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The labelled leucocytes are useful for localization of site of infection and routine used in nuclear medicine clinical praxis. The procedure for separation and in vitro preparation of Tc-99m labeled leucocytes use aseptic techniques throughout all 13 steps, involves: taking a blood sample, red blood cells sedimentation, centrifuge of leucocyte/platelet- rich plasma for 10 min at 150 g and removing the supernatant. The leucocytes are then incubated with Tc-99m HMPAO (Leuco-Scint, Medi-Radiopharma, Hungary), added cell free plasma and centrifuge at 150 g for 10 min. Radiochemical purity measurements are done with simple and rapid procedure proposed by Ballinger. Lipophilic Tc-99m HM-PAO complexes of at least 80% may be expected within 60 minutes after reconstitution. Leucocyte labelling efficiency is not less than 50%. There are no side effects or adverse reactions and no specific contraindications.

Leucocytes labeled with 250-740 MBq Tc-99m HMPAO are iv. reinjected to the patient and after 30 minutes whole body, planar static and SPECT scintigraphy was performed on Orbiter (Siemens, Germany) gamma camera with LEAP collimator. Biodistribution of labelled leucocytes shows normal uptake in spleen, liver, bone marrow and bladder.

The leucocytes scintigraphy was done in three patients, one with osteomyelitis and two with colon inflammation disease. Leucocyte accumulation was find in all patients: on the femur and in the part of colon. Patient with osteomyelitis is under infection treatment and in others two was done colonoscopy, detected bacteria and continued therapy with antibiogram.

Leucocytes separation and labelling is complex and use aseptic techniques which give lipophilic Tc-99m HM-PAO complexes with the high radiochemical purity and good labelling efficiency. Accumulations of the labelled leucocytes of site of infection have very high sensitivity, so, this scintigraphy is a valuable procedure for detection inflammations and abscess infections.