

The role of nuclear medicine in response to infection in the body

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1 Introduction

Nuclear medicine imaging of infection has two major indications: (a) the localization of a focus of infection in patients with fever of unknown origin; in this context the radio-pharmaceutical should be highly sensitive whereas specificity is not so important because subsequent biopsy or morphologically based imaging can be performed; (b) the diagnosis of an infection in patients with localized symptoms, for example after surgery, when normal anatomy is absent or when metal implants prevent computed tomography or magnetic resonance imaging. In these latter cases high sensitivity and to an even greater extent high specificity are mandatory to guide further clinical management (conservative or surgical). All radiopharmaceuticals available to date, such as technetium-99m nanocolloids, gallium-67 citrate, indium-111- and 99mTc-labelled white blood cells, 99mTc-antigranulocyte antibodies, and 99mTc-or l llin labelled unspecific human immunoglobulin, have different biodistributions and different physical characteristics. The absence of physiological uptake in an organ and the radiation exposure of a patient are reasons to use different radiopharmaceuticals in different clinical situations, adapted to the individual circumstances of the patient.